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CONTENTS AND SUBJECT INDEX

The So-Called Medical Complications of Pregnancy. Phil A. Daly, M.D., and Solomon Strouse, M.D., Chicago 1655

Vertex Occipitoposterior Position: Treatment of More Than Five Hundred Consecutive Cases. S. M. Dodek, M.D., Cleveland.....1660

Nervous Symptoms as Earliest Manifestations of Carcinoma of the Pancreas. Joseph C. Yaskin, M.D., Philadelphia 1664

The Combined Use of Digitalis Bodies and Ephedrine Hydrochloride: Effect on the Unanesthetized Dog. Carl A. Johnson, M.D., and N. C. Gilbert, M.D., Chicago 1668

Pathology of Sickle-Cell Anemia: Report of a Case with Death During an "Abdominal Crisis." W. M. Yater, M.D., and Mario Mollari, M.D., Washington, D. C.....1671

The Intervertebral Disk. Emil S. Geist, M.D., Minneapolis.....1676

CLINICAL NOTES, SUGGESTIONS AND NEW INSTRUMENTS

Apparatus for Prevention of Foot Drop in Cases Requiring Prolonged Treatment in Extension. J. Frank Hewitt, M.D., and James C. Owings, M.D., Baltimore..1680

Dermatitis Venenata Due to Chrysanthemum Leaves. M. B. Goldstein, M.D., Youngstown, Ohio.....1680

A Case of Poisoning by Potassium Chlorate. Stefan Ansbacher, Ph.D., Charleston, S. C. 1681

Subdiaphragmatic Gonorrheal Abscess. G. D. Scott, M.D., Sullivan, Ind. 1681

Melanoma of Ampulla of Vater. G. W. Jones, M.D., Clovis, N. M..1682

Migration of a Bullet Terminating in the Epididymis. John F. Hogan, M.D., Baltimore.....1682

SPECIAL ARTICLES

Income from Medical Practice. R. G. Leland, M.D., Chicago....1683

The Indispensable Uses of Narcotics: The Abuse of Narcotics. Bernard Fantus, M.D., Chicago.....1691

COUNCIL ON PHYSICAL THERAPY 1693

COUNCIL ON PHARMACY AND CHEMISTRY 1694

COMMITTEE ON FOODS 1695

EDITORIALS

Intracutaneous Vaccines.....1696

Medical Facilities of Detroit and Philadelphia and the Migratory Physician 1696

The Censorship of Medical and Dental Advertising.....1697

CURRENT COMMENT

Effects of Female Sex Hormone on Conception 1698

The Nerves of the Kidneys.....1698

(Subject Index on next page)

ASSOCIATION NEWS 1699

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OTHER SAUNDERS BOOKS on Pages 3, 4, 5

SUBJECT INDEX TO THIS ISSUE

The letters used to explain in which department the matter indexed appears are as follows: The Star (*) indicates an Original Article; "ab," abstract; "E," Editorial; "C," Correspondence; "Ml," Medicolegal; "ME," Medical Economics.

A. M. A. Alumni Reunion....1699
Annual Congress on Medical Education..1699
contributions for Pershing Hall....1699
Convention Hall, Philadelphia....1699
Council on Pharmacy and Chemistry..E-1697
hotel reservations....1699
local transportation in Philadelphia....1699
Section on Gastro-Enterology dinner....1699
Abdomen, "crisis" in anemia....*1671
Abortion induced by injecting female sex hormone....E-1698; ab-1733
Abscess, subdiaphragmatic gonorrheal....*1681
Acidosis from clinician's viewpoint....ab-1735
Adhesive plaster for curing enuresis....ab-1739
Advertising, medical and dental....E-1697
American Dental Association....E-1697
American Medical Journal of Paris....1712
Ampulla of Vater, melanoma....*1682
Amputation, make new digit after....ab-1735
Anemia, sickle-cell, pathology....*1671
Anesthesia, surgical, convulsions during..ab-1736
Aorta, narrowing at isthmus....ab-1734
Appendix, diseases, roentgen study....ab-1741
Arthritis, chronic, medicinal treatment..ab-1735
roentgen therapy of spondylarthritis deformans....ab-1739
sedimentation rate in....ab-1727
tuberculous, tumors after roentgen irradiation....ab-1740
Association News....1699
Asthma from cough mixture?....1722
Auto fatalities increase....1709
Bacteria, dissociation....ab-1736
Bean preparation, "insulin-like" action..ab-1746
Bee sting of cornea....ab-1728
Bile Duct, calculus, blood sugar curve in..ab-1746
Birth Control and government....1710
biologic....E-1698; ab-1733
New York Academy considers....1707
Bladder, cancer, electrocoagulation cures..ab-1745
iopax in cystoscopic pyelography....ab-1731
Blindness, prevention....1714
Blood coagulation and hemostasis....ab-1746
colloidal silver vs. hematopoietic system....ab-1730
pressure, hypertension and hypertonia..ab-1743
sugar, effect of bean preparation....ab-1746
vessels, oscillometer to determine patency..1720
Bones, roentgen radiation....ab-1730
tuberculosis, tumors after irradiation..ab-1740
Book Notices....1723
Books Received....Adv. page 28
Brain, birth conditions....ab-1728
degeneration of gray matter....ab-1728
tumors of....ab-1728
British Journal of Physical Medicine....1709
Bullet, migrating to epididymis....*1682
Bundesen, H. N., appointed health commissioner....1704
Bureau of Investigation....1718
Cancer, research on....1712
mortality increases....1703
Carbohydrates vs. intestinal peristalsis..ab-1743
Child health, conference on....1707
Chill-producing principle in serum....ab-1729
Chrysanthemum leaves, dermatitis from...*1680
Coma, puerperal, and "milk fever"....ab-1735
Committee on the Costs of Medical Care..E-1696
Committee on Foods....1695
Conjunctivitis, Parinaud's, treatment....1721
Cornea, bee sting....ab-1728
Correspondence....1720
Cough mixture, sensitivity to....1722
Coughing, narcotics in treatment....C-1720
Council on Pharmacy and Chemistry....1694
Council on Physical Therapy....1693
Deaths....1716
Dental advertising censorship....E-1697
Dermatitis from chrysanthemum leaves...*1680
Dermography in children's diseases....ab-1739
Diabetes, grave, oily suspension of insulin in....ab-1738
peptic ulcer with....ab-1727
Diathermy cures bladder cancer....ab-1745
Digitalis with ephedrine hydrochloride....*1668
Diphtheria carriers, disinfection of....ab-1742
carriers, roentgen irradiation....ab-1742
Disability and old age insurance....1715
permanent, in physicians....1715
Dystrophy, muscular, progressive, heart in....ab-1739
Embolism, cerebral, aseptic....ab-1729
Emotions, disorder, neurasthenia....ab-1727
Empyema, closed drainage for....ab-1735
Ephedrine hydrochloride with digitalis....*1668
Epididymis, bullet in....*1682
Erythema nodosum....1721
Eugenics movement, survey....1709
Evidence: roentgenograms: admissibility..Ml-1726
witness, expert; weight of testimony, jury sole judge of....Ml-1726
Fat, "brown fat," surgical importance...ab-1732
Filariasis in Europeans....1714
Food inspection in Amsterdam....1716
Foot, weak....ab-1734
drop, apparatus to prevent....*1680
Foreign Letters....1710
Fundus oculi in hypertension....ab-1743
Gallbladder, gigantic cystic....ab-1738
subserous cholecystectomy without drainage....ab-1739
Gomberg, M., legislature honors....1706
Gonorrhea, subdiaphragmatic abscess....*1681
Granuloma, infective....ab-1733
Gynecology, British congress....1711
Harvey Lecture, eighth....1707
Health units, county....1703; 1705
examinations, five-year campaign....1707
service for drought area....1708
Heart disease, problems....ab-1727
action under vagus stimulation....ab-1734
in progressive muscular dystrophy....ab-1739
rhythm, permanent septal and paraseptal....ab-1737
Heat, skin reactions to....ab-1730
Hemostasis and blood coagulation....ab-1746
Herpes zoster oticus....ab-1729
Hospital, Lying-In, dedicated, Chicago....1705
Hyperthyroidism, radium therapy....ab-1744
Immunity, rôle of nervous system and conditioned reflexes in....ab-1737
Income from medical practice....*1683; E-1696
Infant mortality and social reforms....ab-1745
carbon dioxide for resuscitation....1722
Influenza and degenerative diseases....ab-1734
Insanity: criminal: commitment on verdict of not guilty....Ml-1725
criminal; criteria of....Ml-1726
Insulin, use of oily suspension....ab-1738
like action of bean preparation....ab-1746
Insurance, old age disability....1715
Intervertebral Disk....*1676
Intestines, flora, changing....1722
ileus, paralytic....ab-1741
obstruction, acute....ab-1733
obstruction, sodium chloride by rectum..ab-1738
peristalsis vs. carbohydrates....ab-1743
retrograde incarceration....ab-1741
tuberculous hyperplasia....ab-1736
Iopax in cystoscopic pyelography....ab-1731
in urinary tract tuberculosis....ab-1731
in urologic diagnosis....ab-1731
intravenous urography....ab-1730
value in renal lithiasis....ab-1730
Iritis....ab-1728
acute, etiology....ab-1728
Jacocks, William P., returns....1708
Jaundice, blood sugar curve in....ab-1746
Joints, nonspecific suppurative inflammations....ab-1740
Kahn, R. L., legislature honors....1706
Ketosis in fatal cases of vomiting....ab-1742
Kidney calculi, iopax in....ab-1730
nerves of....E-1698
replacement lipomatosis....ab-1733
Labor, vertex occipitoposterior position...*1660
Laboratories, approval of....1703
Lacrimal obstruction, dacryocystostomy in....ab-1735
Lamellar membranes....ab-1728
Laryngitis, tuberculous, sanatorium treatment....ab-1737
Liver, amebic abscess, treatment....ab-1739
Lung, congenital cystic disease....ab-1733
Magazine, fraudulent solicitor....1707
Marriages....1716
Maternal mortality....ab-1710
Measles, prophylaxis....ab-1744
Medical Education for Americans in Belgium....1714
graduate course in medicine....1707
graduate work in Berlin....1713
graduate work in Paris....1711
Medical Education, Registration....1723
Medical Facilities of Detroit and Philadelphia....E-1696
Medical Practice Acts: revocation of licenses....Ml-1726
Medicine, practice, income from..*1683; E-1696
Medicolegal....1725
Meetings, Coming Meetings....1726
Melanoma of ampulla of Vater....*1682
Meningitis, cisterna puncture for....ab-1727
"Milk fever," and puerperal coma....ab-1735
inspection in Amsterdam....1716
Narcotics in treatment of coughing....C-1720
indispensable uses....*1691
Nervous symptoms of pancreas cancer....*1664
system, rôle in immunity....ab-1737
Neurasthenia....ab-1727
Neuritis, sciatic, treatment....1722
New and Nonofficial Remedies....1694
News....1708
Novy, F. G., legislature honors....1706
Nutrition....1709
Obstetrics, British congress....1711
Oil for oil-immersion lenses....1722
Orbit, complications in sinus disease....ab-1728
infections....ab-1728
Osteomyelitis, chronic pyogenic....ab-1733
Otitis Media, radical operation in....ab-1744
Ovary cyst in child....ab-1732
Ozena, treatment, prophylaxis....1711
Pancreas, acute disturbances....ab-1743
cancer, nervous symptoms....*1664
juices vs. viosterol....ab-1727
Paralysis, spinal, acute ascending....ab-1740
Paratyphoid carriers, disinfection....ab-1742
Pediatrics, dermography in....ab-1739
department in medical school....ab-1701
medical education in....ab-1699
position in medicine....ab-1700
Pedologic University inaugurated....1715
Peptic Ulcer, diet for....ab-1746
pepsin for....ab-1741
treatment....ab-1736
with diabetes....ab-1727
Physicians, migratory....E-1696
Fathers' and Sons' Dinner....1706
Placenta, testing intactness....ab-1745
Pleurisy, interlobar....ab-1740
primary serofibrinous etiology....ab-1737
Pneumonia, chemical, and psittacosis....C-1720
Poliomyelitis virus plus aluminum hydroxide for immunization....ab-1730
incidence, Netherlands....1716
Potassium chlorate, poisoning....*1681
Pregnancy, complications....*1655
dilatation of ureters....ab-1745
living conditions of mothers vs. infant mortality....ab-1745
Manoiloff's reaction....ab-1743
mineral exchange during....ab-1739
vomiting of, treatment....ab-1738
Prostate obstruction....ab-1731
obstruction, fatal treatment....ab-1731
Psittacosis and chemical pneumonia....C-1720
Pyelography, cystoscopic, iopax in....ab-1731
Queries and Minor Notes....1720
Radio, medical lectures....1713
Radio Program....1699
Reflexes, conditioned, rôle in immunity..ab-1737
Reticulo-Endotheliosis....ab-1742
Revista de la Tuberculosis del Uruguay....1709
Roentgen Rays, skin reactions to....ab-1730
irradiation, tumors after....ab-1740
vs. hematopoietic system....ab-1730
Scarlet Fever, streptococcic antivirus for..ab-1746
milk-borne epidemics....1710
Scientific experiments, criteria for....1712
Serum, chill-producing principle in....ab-1729
Sex hormone, female, injection prevents conception....E-1698; ab-1733
Shoes, the weak foot....ab-1734
Silver, colloidal, vs. hematopoietic system....ab-1730
Sinus disease, orbital complications....ab-1728
Skin reactions to heat and roentgen rays..ab-1730
temperature, in bed patients....ab-1746
Socialism, medical, evils....1710
Society Proceedings....1726
Specialties, income from....*1683
Spine, intervertebral disk....*1676
Spleen, compensatory hypertrophy....ab-1729
Staphylococcus aureus, immunity to....ab-1730
State Board Examinations....1723
Stomach acidity vs. psychic secretion...ab-1741
juices vs. viosterol....ab-1727
permanent drainage....ab-1741
Strabismus, treatment....1722
Streptococci, milk borne epidemics due to..1710
Syphilis, bismuth in....1721
Therapeutics, criteria for....1712
Thirst in incoercible vomiting....ab-1741
Throat, sore, milk-borne epidemic....1710
Thrombo-angiitis obliterans....1720
Thumb contractures in children....ab-1744
Tibia, fracture of intercondyloid eminence....ab-1746
Tillotson, A. G., honored....1705
Toes, hallux valgus....ab-1733, ab-1736
Tomarkin Foundation....1712
Tonics and Sedatives....Adv. page 22
Trauma and rupture of duodenal ulcer..Ml-1725
Tubercle Bacillus, microbic dissociation..ab-1736
Tuberculosis in school children....1715
use of old tuberculin....1720
Tuberculosis, Pulmonary, alkali reserve in blood....ab-1745
cavities, healing....ab-1734
thoracoplasty in....ab-1736
youngest pneumothorax patient....1712
Typhoid carriers, disinfection....ab-1742
Ureters, dilatation during pregnancy....ab-1745
Urinary Tract tuberculosis, iopax in....ab-1731
Urine, curing nocturnal enuresis....ab-1739
Urography, intravenous, principles....ab-1730
Uterus, roentgen study of ovarian cyst..ab-1732
Vaccine virus, survival....ab-1730
intracutaneous....E-1696
Viosterol vs. gastric and pancreatic juices....ab-1727
Vomiting, fatal cases....ab-1742
incoercible, permanent gastric drainage in....ab-1741

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THE SO-CALLED MEDICAL COMPLICATIONS OF PREGNANCY *

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AND
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CHICAGO

From an historical point of view it has been interesting to study published opinions of authorities on obstetrics concerning the question of so-called medical complications encountered in their specialty. In the first edition of DeLee's Obstetrics [1] (1913) "glycosuria" is considered as an entity, and the prognosis of diabetes (50 per cent mortality) is discussed without reference to any collateral features such as the simple one of proper treatment of diabetes. The fifth edition [2] (1928) states that "today with proper treatment mortality is much lower, and in most cases pregnancy may be carried through to term." Proper treatment naturally means treatment by men trained in the field of metabolism.

The earlier pessimistic statistics regarding the outlook for the pregnant woman with heart disease or diabetes are almost completely lacking in what might be called comparative control. The gloomy prognoses are based almost entirely on comparisons of pregnant ill women with pregnant well women. No real attempt is made to compare the statistics of diabetic pregnant women with the general statistics on diabetes for women of the same age. Yet such a study is the only logical method of obtaining information of real importance in evaluating the effect of pregnancy on diabetes. It must be recalled that before the days of insulin many nonpregnant women of child bearing age lived only a few years, a fact often neglected in considering the effect of pregnancy on diabetes. The same fact, of course, is true for young women with heart disease.

With the emphasis placed on the obstetric point of view there developed a paradoxical philosophy of therapy. A case of organic heart disease or of diabetes mellitus in which a surgical condition affecting the kidney develops remains primarily a medical case with surgical complications. But a woman with organic heart disease who becomes pregnant immediately is treated as a case of pregnancy with medical complications. This position no longer is tenable; on the contrary, the medical side of the combination should become the paramount issue, the pregnancy the complication. It is our purpose in this paper to maintain this thesis, using heart disease, disturbances of the thyroid gland and diabetes as illustrative examples to prove that the pregnant woman with so-called medical complications can be better studied, better diagnosed and better treated when the emphasis is placed on the medical aspect.

It is beyond our purpose to attempt a review of the voluminous literature bearing on the subjects under discussion. We wish to give merely an outline of the development of our own experiences. During the progress of this study many papers appeared from various other clinics emphasizing the medical point of view, so that gradually the pendulum has swung to a position which internists at least must consider more rational. An article such as that by W. D. Reid,[3] which appeared in January, 1930, on the prognosis of heart disease in pregnancy represents an aspect of the question practically never encountered in 1920.

For the last ten years we have had an unusual opportunity of studying at the Chicago Lying-In Hospital all obstetric cases that presented any type of medical complication. At first it was the custom of the members of the obstetric staff merely to ask our opinion on patients with such complications. After a short time it was apparent that more than a casual consultation was needed. Dr. DeLee and the other members of the staff soon saw that proper therapy of such patients required a complete change of attitude: pregnant women with heart disease, with diabetes, with kidney disease or with more acute complications, such as pneumonia, were essentially medical cases and must be handled by the internist. The obstetrician then became the consultant, watching the patient steadily and determining in cooperation with the internist the proper obstetric procedure.

For the purpose of more complete medical study, we obtained a ward in the Lying-In Hospital, and we established outpatient clinics both in the hospital and in the dispensaries. In the outpatient work, every patient suspected of having the slightest aberration from the normal medical aspect was referred to the medical clinic. The obstetricians made no effort to determine whether a heart murmur was organic, nor would they make decisions regarding the significance of a glycosuria or a tachycardia. In the hospital the same principal was adopted—of referring to the medical clinic any abnormality, and we also had the privilege of sending to our own ward any patients who we thought required medical observation. At no time was the obstetrician out of touch with the case, but the diagnostic and therapeutic controls were in our hands. It soon became apparent that under the new regimen better therapeutic results were obtained. And as the work went on it developed that certain of the clinical concepts concerning complications in pregnancy were based on erroneous ideas of both diagnosis and treatment. In the study of

* From the Chicago Lying-In Hospital and Dispensary.

1. DeLee, J. B.: The Principles and Practice of Obstetrics, ed. 1, Philadelphia, W. B. Saunders Company, 1913.
2. DeLee, J. B.: The Principles and Practice of Obstetrics, ed. 5, 1928.
3. Reid, W. D.: Am. J. Obst. & Gynec. **19**: 63 (Jan.) 1930.

disease it is not always a simple task fully to differentiate the course of illness in the untreated, the poorly treated and the well treated disease. In other words, frequently the disease is confused with the pathologic conditions resulting from inefficient or excessive treatment, and the clinician is really seeing the pathologic conditions due to treatment instead of those due to the disease.

DIABETES AND GLYCOSURIA

For instance, as the knowledge of the significance of the various glycosurias of pregnancy increased and as we became more familiar with the significance of these conditions, we encountered patients in whom previous pregnancy had resulted disastrously but who under the new regimen went to normal delivery without accident. A careful analysis of such patients almost forced the conclusion that some at least of the earlier accidents had been due to errors in medical management. Frequently the mistake was definitely traceable to fear of the dangers of diabetes in pregnancy and to a consequent overtreatment of the individual. We found that unrecognized benign glycosurias of the renal type had been overtreated as severe diabetes, with bad results, whereas in subsequent pregnancies the condition, now recognized and understood, responded satisfactorily to little or no treatment.

When we started our work, obstetric opinion in general held that any glycosuria in pregnancy was dangerous. As a result the three types of glycosuria commonly seen in pregnancy—renal glycosuria, the mild diabetes sometimes developing only during pregnancy, and severe diabetes—were all treated alike. Usually the treatment was excessively severe, so that the patient suffered in many instances not as much from the original glycosuria as from the effects of this overtreatment. Students of metabolism are aware that the patient with the renal type of glycosuria is rendered sugar free only with great difficulty, and that persistence in a strict adherence to a low carbohydrate diet results in acidosis. The use of an unbalanced diet for many months of pregnancy carries with it the possibility of further injury to the metabolism, endangering life of mother or fetus.

The same state of affairs exists in those patients who when not pregnant are apparently normal but who during pregnancy develop the signs of a mild but true diabetes mellitus, i. e., glycosuria and hyperglycemia. This type of patient is not very rare and usually requires only moderate reduction of carbohydrate intake to maintain perfect health during pregnancy and to arrive at normal labor, with delivery of a normal child. Overtreated, such a patient soon develops a syndrome certainly not due to the causative disease but to overtreatment; and again the clinicians' concepts are based on the pathologic changes arising from treatment. We do not wish to array a list of illustrative examples: one case should be cited in brief:

A woman, aged 28, seen in 1924 during her third pregnancy, had been found during the two previous pregnancies to have sugar in the urine, which persisted in spite of rigid diet. Her first pregnancy ended by induction of labor, which was two weeks overdue. During the labor she had convulsions and albuminuria. The baby lived forty minutes. The second pregnancy ended in normal delivery, but the child lived only ten hours. Between the second and the third pregnancy she was perfectly well, there were no symptoms of diabetes, and one urinalysis showed no sugar.

We first saw her at the request of Dr. DeLee when she was four months pregnant. Examination was negative except for the pregnancy and a small amount of dextrose in the urine. Her blood sugar was 88 mg. After a high carbohydrate meal the blood sugar was 138 mg. Diet was moderately restricted, and the urine usually showed from 1.5 to 5 Gm. of dextrose daily. In the seventh month she grew careless; the dextrose in the urine increased to 28 Gm. and in the blood to 143 mg. On one occasion the blood sugar was 157 mg. Sugar disappeared, June 18, and remained absent until delivery, July 2. From that date to July 10 it was intermittent.

Because of a small pelvis, delivery was by cesarean section, and a normal healthy baby resulted.

This patient was not seen again until April, 1926, when again she was pregnant. There were no symptoms of diabetes and no glycosuria in the interim. She was about three and a half months pregnant, sugar was present in the urine, and the blood sugar taken at 3 p. m. after a heavy lunch was 216 mg. In June she restricted her sugar intake; urinary sugar disappeared and the blood sugar was 166 mg. She had sugar intermittently until delivery, also a cesarean section, October 10. The postoperative course showed an occasional trace of sugar until October 25, when it disappeared. We were unable to keep close observation of this patient but in the early part of 1928 she again consulted Dr. DeLee because she had missed a period in December, 1927. There were symptoms of pregnancy but the uterus was not the size to be expected of a pregnancy at that time. An examination of urine made in January, 1928, was free from sugar. February 5 she menstruated normally.

As for the more marked cases of true, even severe, diabetes mellitus the therapeutic problem has become safer, if not simplified, by the use of insulin. The treatment of a patient with severe diabetes is never a matter to be undertaken without realization of the inherent dangers and difficulties; certainly these difficulties are not lessened by pregnancy. Yet with care and painstaking attention to the fundamental principles of diabetic therapy even such patients can be carried through to normal delivery.

HEART DISEASE

From a study of the large group of cases one of us (P. A. D.) was able early in the course of the work to publish a report of a series of heart cases with a comparatively small mortality rate and an unusually good prognosis.[4] In this group it was not so much a question of the application of newer specialized knowledge as it was the employment of regular specialized technic. It must be taken for granted that an internist constantly treating heart disease is in a better position to handle such a patient when she is pregnant than would be the obstetrician. As a matter of fact, the pregnant patient with heart disease offers exactly the same subject for therapy as does the normal woman except for the extra mechanical burden of pregnancy. There is no specific problem involved in pregnancy. Broadly speaking, the treatment of heart disease is based on mechanical adjustment of effort to the capacity of the heart muscle. Pregnancy increases the effort.

We have had the opportunity of observing some 500 patients with heart disease through pregnancy, delivery and afterward for periods up to eight years. In this series is represented every type of heart disease. A diagnostic survey of 354 readily available records reveals 255 (72 per cent) with mitral lesions, 7 (2 per cent) with congenital lesions, 20 (5.65 per cent) with aortic lesions, 24 (6.78 per cent) with combined aortic and mitral disease, 47 (13.27 per cent) with myocardial changes, and 1 metastatic melanocarcinoma of the right ventricle. The 255 mitral lesions include 138 with all the signs of stenosis and 117 with the mitral systolic

4. Daly, P. A.: The Heart in Pregnancy, J. A. M. A. 82:1439 (May 3) 1924.

murmur and other signs of cardiac disease without a definite presystolic murmur. The etiology includes syphilis, acute rheumatic fever, arteriosclerosis and thyroid disease. Of the entire series of 500, 12 (2.4 per cent) patients died, but if the causes of death are analyzed with the aid of confirmations at autopsy it is found that three patients were victims of acute vegetative endocarditis, two of sepsis—one puerperal, one surgical kidney; one patient died from a pulmonary embolus, arising in the pelvis. There was one influenzal pneumonia and one carcinoma of the myocardium. The remaining four were definitely due to failure of chronically diseased hearts.

Division of these deaths is made to illustrate the fact that, though heart disease was present in all, pregnancy was not necessarily the factor that produced death in all. Those patients with acute endocarditis, carcinoma and influenzal pneumonia would probably have died even without pregnancy, and the patients with sepsis and with pelvic thrombi had a gloomy prognosis even if they had no heart disease. This analysis again emphasizes the need of a statistical study based on what we called earlier in this paper "comparative control."

The most important factor to be considered in the management of patients with chronic heart disease during pregnancy is the added amount of work occasioned by the pregnancy. The object of treatment is to maintain or increase the cardiac reserve so that toward the end of pregnancy and during delivery there is sufficient muscular efficiency to handle the work, which is at its maximum during this time.

The means of attaining cardiac reserve are no different in the woman with heart disease complicated by pregnancy than they would be in the same woman who was not pregnant but whose routine of life necessitated some manual labor. Cardiac reserve is obtained by proper balancing of rest and work. In analyzing our cases we see again the same tendency to overtreatment as was noted earlier in the discussion of diabetes, and also the same tendency to draw conclusions from the pathologic conditions arising from treatment rather than from those arising from the disease.

Probably the most frequent evidence of overtreatment is seen as a result of insistence on too much rest in bed. It is noticeable that private patients with heart disease do not stand pregnancy as well as ward patients. May it not be because these patients with greater means have been so protected from effort that the cardiac reserve has never been built up to its maximum prior to pregnancy and that during the pregnancy the program of increased rest further decreases this reserve so that when the maximum effort is required there is insufficient myocardial strength to meet the demand?

This reference to overtreatment does not mean that no attention should be paid the diseased heart during pregnancy; rather it is meant to suggest that the care of the heart during pregnancy should proceed along the same lines as govern the care of diseased hearts in patients engaged in other occupations; maintaining the myocardial strength so that the demands of the occupation are always short of using up the complete reserve of the heart.

Concerning the more remote effects of pregnancy on the diseased heart, we can see no appreciable difference at the end of a year, or two or five years, between the cardiac patients who have gone through a pregnancy and patients with similar heart lesions who have not. There is the same tendency to progression on the part of heart lesions; there is the same liability to overwork, and there is the same penalty attached to excessive work, whether it be pregnancy or some other form of effort. And there is the same possibility of guarding against overstrain in either instance. There is no justification for the tendency to consider pregnancy as a peculiarly disastrous quality of work as compared to any other of similar quantity. Any heart case may be worse after one year or five years without pregnancy as a cause of the deterioration. However, just because one pregnancy has not been detrimental it does not follow that frequent subsequent pregnancies will not be; for, after all, each pregnancy involves additional work, and too much effort, continuous or oft repeated—whether it be pregnancy or manual labor—may prove disastrous to a diseased heart. It has recently been pointed out by W. D. Reid [5] that the average life of women with heart disease is about the same whether they have been pregnant or not.

Labor and delivery are ordinarily anticipated with the greatest fear, and this phase of pregnancy *is* associated with effort that cannot be estimated. Nevertheless delivery is so regularly fast and easy, and the obstetric means for lightening the burden so effective, that a diseased heart which has not failed during pregnancy and is not in a stage of decompensation at the time of delivery should not suffer a fatal failure because of delivery. Hearts that are decompensated when labor occurs offer a grave prognosis, whether it be at seven months or nine, and the result is usually a fatality. Induction of labor should not be attempted in the presence of heart failure, nor should delivery by cesarean section be done, if avoidable, until compensation is restored.

The method of delivery cannot be determined by rule; circumstances of the individual case govern the choice of procedure. Spontaneous labor with forceps aiding delivery is the method of choice in most instances but is inadvisable in many cases, particularly when early delivery is desired or when subsequent pregnancies are deemed unwise. Under such conditions, cesarean section is the best plan. Induction of labor, even at term, seems always to increase the amount of work.

THYROID

The present status of scientific knowledge of the thyroid may conservatively be called confused. Despite a tremendous volume of study, differences of opinion still exist concerning the causes of changes in size and in function, the underlying or primary pathologic condition, the chemistry of the thyroid secretion. Two definite clinical entities are known by their physiologic names of hyperthyroidism and hypothyroidism. Mixed anatomic and physiologic classifications are many and varied. A voluminous literature on the relation of the thyroid to the sex glands and to pregnancy is characterized by widely divergent opinions, so that any approach to the subject must be made with an open mind. In our studies of the thyroid in pregnancy we have attempted to apply to the problem the results of our general medical experience.

We have seen large numbers of women with normal and abnormal thyroids, both nonpregnant and during pregnancy, and from our observations has sprung the impression that thyroid changes may be dominant factors in the production of sterility and miscarriage, and a suggestion that its aberrations may be instrumental in the production of certain toxemias of pregnancy.

5. Reid, W. D.: The Heart in Pregnancy, J. A. M. A. **95**: 1468 (Nov. 15) 1930.

We present some of these observations with no intention of being dogmatic but with the hope that they may eventually lead to the development of confirmed facts for the prevention and treatment of some of the present difficulties connected with pregnancy.

Pregnancy has an influence on the thyroid gland. Even those thyroids usually called normal are subject to changes both anatomic and functional during the course of pregnancy. These several changes we believe may be interpreted as evidence of increased activity in response to the extra demands of pregnancy. The majority of normal thyroids in the Great Lakes region undergo a noticeable enlargement during pregnancy. A recession of this increase in size takes place in part or in whole after delivery or at the end of the lactation period. There may be and usually are no symptoms indicative of a change in function accompanying this enlargement.

In a small percentage of patients, however, there occur symptoms indicative of a functional change: nervousness, tachycardia, insomnia, headache and increase in blood pressure, evidence suggestive of mild hyperthyroidism but without loss of weight or a definite increase in metabolic rate above the normal. This syndrome, which we [6] have previously reported in more detail, when present occurs regularly between the fourth and sixth months of pregnancy and has a self-limited duration of from four to six weeks if untreated but responds to iodine in a few days.

Real toxic goiter may develop in previously normal thyroids. This is by no means common. If it does occur the toxic symptoms may appear at any stage of the pregnancy but more frequently after the fifth month and not infrequently after completion of the pregnancy. Usually these women carry to term unless the toxicity is extreme.

On the other hand, pregnancy beginning during a phase of hyperthyroidism and continuing is rare. Hyperthyroidism tends to frequent early miscarriage, usually in the first three months and not infrequently so early that the patient is cognizant only of the fact that one menstrual period was missed to be followed in two or three weeks by an unusually profuse flow with cramps and clots. This tendency to early miscarriage, especially in patients with more or less continuous moderate hyperthyroidism, often suggests syphilis rather than thyroid as the cause.

As an example of this we recite a case that is representative of many:

Mrs. P., aged 26, seen through the courtesy of Dr. Ralph Reis, had her first pregnancy in 1923. During this, she developed thyroid enlargement, a fast pulse, blood pressure of 154 systolic and 100 diastolic, but no other signs of thyroid toxicity. She delivered a full term baby, hydrocephalic with spina bifida. In 1924 she became pregnant again and miscarried at three months, which miscarriage was attributed to a fall. In 1925 she experienced a spontaneous abortion at two months. Investigation at this time revealed a condition of hyperthyroidism, and her history suggested that the condition had existed since her first pregnancy. Thyroidectomy was performed. In 1927 and 1930 she delivered normal babies; and between 1925 and 1930 there was no recurrence of her toxic thyroid symptoms, no intervening miscarriage and no treatment other than the thyroidectomy.

Anatomically abnormal thyroids either adenomatous or diffusely enlarged usually show no disturbance of function unless there have been previous cycles of toxicity. However, the incidence of toxicity in this type, though small, is greater than in the normal thyroid. Patients with histories of previous toxic cycles have a more definite tendency to recurrence of hyperthyroidism during pregnancy. Treatment is directed at the thyroid rather than at the pregnant uterus. And here again is an instance in which the presence of pregnancy may produce misdirected treatment. Early in pregnancy, thyroidectomy, if the condition warrants, should be done and may be done without interrupting the pregnancy, and it produces the same thyroid result as would the same procedure in a nonpregnant woman. Hyperthyroidism appearing later may be carried through by the usual medical management, rest and iodine, or, if it is deemed unwise to defer thyroidectomy, it may be done without much risk of disturbing the pregnancy.

Interruption of the pregnancy early or late may diminish the thyroid toxicity, but seldom will it produce a remission; nor will completion of pregnancy with elimination of the lactation period bring about the desired permanent relief.

Mrs. J., aged 32, was seen in the fourth month of her third pregnancy because of a marked tachycardia. The first pregnancy had been normal except for the development of thyroid enlargement. The second pregnancy resulted in a miscarriage before the third month. There had been several periods in the preceding four years during which the patient had experienced palpitation, nervousness and tachycardia, and she had gained the impression that she had heart trouble.

She presented a typical picture of moderate hyperthyroidism of the exophthalmic type. Her basal metabolic rate was plus 35 per cent. One month later the rate was plus 65 per cent, though clinically the patient was better. With rest and short courses of iodine, pregnancy was completed and terminated by cesarean section. Improvement was prompt but lasted only a few weeks. Three months after delivery the basal rate was still plus 40 per cent, the clinical picture was more marked, and thyroidectomy was necessary.

To understand the effects of hypothyroidism on pregnancy it is necessary to have an idea of the change that normally occurs in the basal metabolic rate during pregnancy. The metabolism normally increases. This may not be revealed as a high metabolic reading during the pregnancy but as a relative increase paralleling the progress of the pregnancy. In those patients on whom we have been able to secure control readings shortly before pregnancy and have secured metabolic rates every month during pregnancy there has been an invariable increase of from 20 to 30 per cent. This may be from minus 20 to plus 5 per cent or from plus 10 to plus 40 per cent.

Decreased activity of the thyroid seems to have more comprehensive influences, influences that are complicated and difficult of interpretation. This is especially true if we attempt explanation on the basis of the usual concept of hypothyroidism, because most of these patients do not present a picture of uncomplicated hypothyroidism. They present rather a picture of mixed endocrine disturbance with thyroid disturbance not characteristic of the usual concept of hypothyroidism.

These patients are of masculine build and have masculine distribution of hair. They have excessive fat on the abdomen, hips, and posterior axillary folds. Disturbance of menstrual cycles or prolonged periods of amenorrhea are common. Many have low basal metabolic rates, but this is not always true; the foregoing picture plus a basal rate of 30 or 40 per cent above normal and tachycardia is not uncommon. An unusual feature is the fact that the metabolic rate may decrease,

6. Daly, P. A., and Strouse, Solomon: The Thyroid During Pregnancy, J. A. M. A. 84: 1798 (June 13) 1925.

and the pulse become slower on thyroid therapy. In this type of patient there is a tendency to sterility, which in certain instances may be readily corrected by thyroid feeding.

Patients in this group during pregnancy are subject to toxemias—edema, albuminuria, hypertension, preeclamptic state and eclampsia. The tendency to toxemia in patients with decreased thyroid activity has been suggested by several contributors to the literature. Knaus [7] points out the retention of nitrogen, decreased elimination of water and sodium chloride, and the defective absorbing power of subcutaneous tissue in patients with diminished thyroid activity. Ward [8] concludes that toxemia of pregnancy is very probably dependent on faulty metabolism. Carl Davis [9] has suggested the same thing.

Our observations support these views and go further in the explanation of the cause of the toxemia. The fact of a low metabolic rate is not enough to account for the disturbance. The majority of women with low basal rates have no toxemia during pregnancy. Our evidence points to the failure of metabolism to respond to the demand of pregnancy and to increase parallel to the progress of the pregnancy as the deciding factor. As we have already pointed out, in normal pregnancy the metabolism increases with the pregnancy. The rate prior to pregnancy may be minus 20 per cent and the maximum during pregnancy plus 5 per cent, or the initial reading may be plus 15 per cent and the maximum plus 35 per cent, but the parallelism is regularly present.

The patients of the type under discussion fail to follow this normal course—the metabolic rate increases little if any and does not continue to increase with the pregnancy. If by thyroid therapy this normal increase can be obtained, toxemia does not occur; or, if symptoms occur, sufficient thyroid produces alleviation of them.

We have had five patients who we think support the suggestion that this may be one avenue of attack on certain toxemias. Each of these patients had lost one or more babies as a result of toxemia or eclampsia and had come to us to find out whether or not it would be safe to undertake another pregnancy. Investigation of these patients included a thorough effort to determine the presence or absence of pathologic change in the kidneys. In none of them could be found any evidence of impairment of kidney function. In all of them there was evidence of endocrine disturbance pointing most strongly toward a thyroid dysfunction. The basal metabolic rates varied from minus 30 per cent to minus 5 per cent. Each of these patients became pregnant, and metabolic rates were determined each month during the pregnancy.

In each instance there was an increase in the rate in the first three months, amounting to about 10 per cent. The fourth month, at which time according to our observations the increase should be more rapid, no increase occurred. Thyroid feedings were instituted in doses sufficient to increase the basal rates. As long as this increase continued and reached a point from 20 to 25 per cent above their initial reading, no symptoms developed; but if the thyroid feeding was insufficient, or if it was interrupted for a period of time, symptoms of toxemia developed; namely, a generalized edema, albuminuria, and an increase in blood pressure. These symptoms disappeared promptly when sufficient thyroid was given to increase or maintain the metabolism at the higher level. One of these patients with post-thyroidectomy hypothyroidism has gone through two pregnancies under similar management. She is able to regulate her dosage of thyroid and recognizes insufficiency of the amount of thyroid by the symptoms that develop:

Mrs. B., aged 31, three and one-half years previously had suffered from eclampsia and had lost her baby. Previous to that she had had two miscarriages at three and four months, respectively, because of some type of toxemia. Investigation revealed that she was overweight, the excess fat being distributed on the abdomen, hips and posterior axillary folds. The blood pressure was 140 systolic and 80 diastolic; the pulse rate was 100. There was a slightly enlarged thyroid, with a fine tremor. The urine was normal and all the kidney function tests were negative. The basal metabolism was minus 15. The patient was advised that she might attempt pregnancy. She became pregnant, and basal readings were begun after two months of the pregnancy. At the beginning of the third month the basal metabolism had increased to minus 4, the fourth month to plus 5. At the fifth month it had decreased to zero, and with the decrease there developed symptoms indicative of a toxemia; namely, generalized edema, increased pulse rate and increased blood pressure. Thyroid treatment was instituted, whole gland, 3 grains (0.2 Gm.) daily. At the sixth month the basal metabolism had increased to plus 17, all symptoms had disappeared, and the patient felt perfectly well. The thyroid was reduced to 1 grain (0.065 Gm.) daily. At the seventh month the basal metabolism was plus 18 and remained so until completion of the pregnancy, which occurred as a normal spontaneous labor. This case is representative of the small group of five.

A sixth patient, Mrs. S., was similar to those quoted. Her basal metabolic rate prior to pregnancy was minus 11 per cent; this was increased, by feeding thyroid, to plus 11 per cent at seven and a half months, at which time she developed albumin (+) and an increased blood pressure (160 systolic). There was no edema and no subjective symptoms but she had two short convulsions and was delivered. The baby lived.

We know that the results of six cases do not produce facts from which we can generalize either as to etiology or as to therapy. Yet these cases strongly suggest that disturbance of thyroid function may be a factor in the production of some of the toxemias of pregnancy.

104 South Michigan Avenue.

7. Knaus, H.: Wien. klin. Wchnschr. **37**: 1105, 1924.
8. Ward, G. G.: Surg. Gynec. Obst. **9**: 617, 1909.
9. Davis, C. H.: Thyroid Hypertrophy and Pregnancy, J. A. M. A. **87**: 1004 (Sept. 25) 1926.

Etiology of Disease of the Sinus.—The etiology of disease of the sinus still remains an unsolved problem. It is true that many cases present indisputable evidence of insufficient ventilation and drainage due to structural abnormalities in the nasal passages. Deflected septums, anomalous development of cells in the middle turbinates and unusually large inferior turbinates unquestionably predispose to this disease. Yet how often does inspection show an apparently normal nasal cavity in a person suffering from disease of the sinus, while in another patient one is unable to understand how any of the sinuses could be properly drained and ventilated, and yet the patient gives no history of any nasal disease or discomfort? There remains much to be done in experimental investigation regarding the underlying causes, deficiency in calcium, endocrine disturbances, the relation of the disease to metabolic disorders, changes in the blood chemistry from normal, and other factors. All must be predisposing factors. There is something more than contact and exposure to acute infections; the nasal cavities are never free from bacterial content. What makes them more virulent at one time than at another remains a mystery. Pathologic changes seen in tissue removed does not offer a solution of the problem. Suppurative and hyperplastic disease as seen under the microscope does not produce greatly different changes. —Stevenson, Walter: *Arch. Otolaryng.*, April, 1931.

THE VERTEX OCCIPITOPOSTERIOR POSITION

THE TREATMENT OF MORE THAN FIVE HUNDRED CONSECUTIVE CASES *

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It often has been said that the vertex occipitoposterior position is the obstetric complication taking the greatest toll of fetal and maternal life and predisposing toward the greatest morbidity and permanent damage among surviving mothers. Reports that one sees, from time to time, adequately bear out this statement, and all writers are apparently in agreement that mismanagement, particularly faulty diagnosis resulting in neglect of a persistent posterior position, and subsequent maternal exhaustion and fetal distress is the chief offending factor. One teacher within the past two years has gone so far as to suggest that the improper management of this malposition contributed considerably to the high fetal and maternal mortality in his city.

Diagnosis is unquestionably of paramount importance in the intelligent handling of these cases and should not be difficult. Vaginal examination to determine the position of the vertex is rarely essential. Careful abdominal palpation and auscultation, combined with rectal examinations during the first and early second stages, will in nearly every case determine the relationship of the presenting vertex to the maternal pelvis.

Abdominally, the fetal back is palpated well in the mother's flank, the anterior shoulder well back from the median line. If the thumb and first finger are placed equidistant from the symphysis pubis, over the rami, inward pressure will reveal a firm mass—the forehead—on the side opposite to the back and a depression on the side corresponding to the back. The heart sounds are usually distant but best heard deep in the flank. When there is some deflection of the head, the chest is pushed forward, one hearing distinct heart tones nearer the median line, occasionally on the same side on which the forehead is palpated, from which they may be traced laterally to the flank, becoming gradually more distant as the flank is approached.

When labor first begins and the cervix is not sufficiently dilated to permit palpation of the longitudinal suture, abdominal examination must temporarily suffice. However, when the cervix reaches a dilatation of from 4 to 5 cm., the sagittal suture is usually palpable by the rectum, and its direction, ascertained in this manner, is an additional aid toward diagnosis. As complete dilatation is approached, it becomes progressively simpler to palpate and locate either or both of the fontanels. When the head is well flexed the posterior fontanel is prominent, and when deflection exists the anterior fontanel is palpable, thus definitely establishing the diagnosis. It is not uncommon to be able to feel both fontanels at the end of the first stage of labor by this method.

The clinical course of labor in posterior positions will often suggest the presence of this complication. Labor is longer, the cervix may be pulled toward the side of the presenting part, dilatation of the cervix is slower and complete dilatation is occasionally not reached because the poorly flexed head does not fit well into the pelvis or exert a sufficiently equalized pressure on the cervix. The bag of waters frequently ruptures earlier than in the anterior positions, adding an additional factor to the slowly dilating cervix.

Failure to recognize the presence of a posterior position and consequent alarm over what may seem an unusually long labor may lead to an attempt at delivery before the cervix is completely dilatable, with disastrous results. Failure, too, to recognize a persistent posterior position during the second stage of labor may result in exhaustion of the uterus and abdominal muscles, when they prove unequal to the task of rotating the head anteriorly. Instrumental delivery should never be attempted before the establishment of an accurate diagnosis of position and in the case of a persistent posterior position is almost invariably attended by severe maternal lacerations and considerable fetal damage.

The treatment and management of the occipitoposterior position in the Cleveland Maternity Hospital has not presented an unusually difficult problem, and the present study of some recent deliveries is an attempt to describe graphically the definite policy that is followed.

The study here reported includes all cases of vertex occipitoposterior position that occurred in the Cleveland Maternity Hospital among dispensary patients during a period of nearly twenty-one months, from Jan. 1, 1929, to Sept. 20, 1930. All these patients were delivered within the hospital by the resident staff under the supervision of the senior resident or a member of the attending staff, with but few exceptions. Nearly all these patients had received prenatal care and treatment in the several dispensaries maintained throughout the city.

The series is consecutive and also includes those cases which, in addition to being cases of occipitoposterior position, were complicated by some major abnormality. It is also noted that the diagnosis of position was made in the majority of cases during labor by rectal and abdominal examinations and confirmed at the time of delivery; in the cases of persistent posterior positions, by vaginal examination.

The incidence of the occipitoposterior position has been variously estimated to be from 4 to 40 per cent [1] of all cases of vertex presentations, and in this review of 1,723 cases of vertex presentation in 1,785 babies born during the time over which this series extends, I found the posterior position to occur 514 times, or in 29.8 per cent. With regard to the ratio of right to left posterior position, however, my observations are decidedly out of proportion to the figures of other writers,[2] who estimate the former position to occur in from 85 to 98 per cent and the latter in from 2 to 15 per cent of all cases of posterior position. In this series, the right occipitoposterior position occurred with the frequency of 54.7 per cent and the left occipitoposterior position, 45.3 per cent of all posterior positions studied.

* From the Department of Obstetrics and Gynecology, Western Reserve University School of Medicine.
* Read before the Obstetrical and Gynecological Section of the Academy of Medicine, Cleveland, March 4, 1931

1. Jellett, H., and Nadill, W. G.: Manual of Midwifery, ed. 4, New York, William Wood & Co., 1929. Vinson, W. H.: Incidence and Treatment of Persistent Occipito Posterior Position, J. Iowa M. Soc. **29**: 111 (March) 1929. Wilson, P.: Vertex Presentation with the Occiput Posterior—The Most Frequent Cause of Intervention in Labor, Virginia M. Monthly **56**: 353-361 (Sept.) 1929. Kerr, J. M.; Ferguson, J.; Young, J., and Hendry, J.: A Combined Textbook of Obstetrics and Gynecology, New York, William Wood & Co., 1923. Williams, W.: Obstetrics, ed. 5, New York, William Wood & Co., 1927.

2. Jellett and Nadill (footnote 1). Williams (footnote 1). Miller, Douglas: Occipitoposterior Position of the Vertex: A Survey of 750 Cases, Tr. Edinburgh Obst. Soc. **86**: 77, 1926-1927.

The cases reviewed have been classified into two main groups and subdivided into six subgroups for the purpose of presentation and study (table 1).

A. DELIVERED VAGINALLY, FOUR HUNDRED AND NINETY-SIX CASES

GROUP 1.—Spontaneous anterior rotation of the occiput from a posterior position occurred 148 times, or in 29.8 per cent. Of these there were 101 primiparous and 47 multiparous patients, all but one of whom were delivered by forceps after spontaneous rotation. The fetal loss was two premature babies, one of which was delivered spontaneously, and no mothers died.

It is the general opinion that in the neighborhood of 80 per cent of all fetuses in the posterior position will rotate spontaneously if "left alone." A certain number of them will rotate spontaneously and easily, and in this series 148 did, after an average duration of labor of twenty hours for primiparous patients and twelve hours and forty-five minutes for multiparous patients.

TABLE 1.—*Classification of Cases*

Group	Delivered Vaginally	No. of Cases	Deaths Maternal	Deaths Fetal
1	Spontaneous rotation and delivery	1	0	1
	Spontaneous rotation, forceps delivery	147	0	1
2	Persistent posterior position, arrested at pelvic brim	60		
	Internal podalic version	59	1	8
	High forceps, modified Scanzoni	1	0	0
3	Persistent posterior position, arrested in the pelvic cavity below the pelvic brim, but not below the spines of the ischia	88		
	Modified Scanzoni, forceps delivery	70	1	4
	Transverse arrest, delivered by one application of forceps	13	0	1
	Manual rotation, forceps delivery	5	0	0
4	Persistent posterior position, arrested in the pelvic cavity below the spines of the ischia	200		
	Modified Scanzoni, forceps delivery	151	0	4
	Transverse arrest, delivered by one application of forceps	41	0	2
	Manual rotation, forceps delivery	7	0	0
	Delivered as posterior with forceps	1	0	1
	Delivered Abdominally—Cesarean Section			
5	Complicated persistent posteriors	12	0	1
6	Uncomplicated persistent posteriors	6	0	0
	Total	514	2	23

Dr. Bill [3] feels—and it is the guiding policy at the Cleveland Maternity Hospital—that it is possible to tell early in second stage labor whether the head will rotate spontaneously and promptly or, if at all, only after many hours. For this reason decision as to the outcome of a given case is made when possible in at least one hour after second stage labor has begun, and labor terminated by the correction of a persistent malposition and delivery, in approximately two to two and one-half hours.

Several cases of occipitoposterior position in this entire series were allowed to remain in second stage for varying lengths of time after delivery would usually have taken place. These patients were kept under the influence of inhalation analgesia and carefully watched and the fetal heart tones recorded regularly. It was noted that in only 26 per cent did the head rotate spontaneously, and of these five were in the second stage more than three hours, five for four hours, four for five hours or more, three for six hours, and one for seven hours.

GROUP 2.—Internal podalic version is the elective method of delivery for cases in which the greatest diameter of the head has not descended below the pelvic brim and in which there is no apparent disproportion or obstacle in the maternal pelvis. High forceps delivery is thus practically eliminated, except in very rare instances after a prolonged labor in which the membranes may have ruptured prematurely, resulting in a tonic uterus that does not relax sufficiently under anesthesia to allow version.

Of the sixty cases falling in this group, high forceps delivery was necessary only once. The patient was a white primipara with ample pelvic measurements who had passed through an uneventful pregnancy. At the time of delivery, more than twenty hours after labor had begun, the greatest diameter of the head had not passed the pelvic brim. The membranes were intact and internal podalic version and extraction was attempted. Despite deep ether anesthesia, the uterus contracted to such a degree on the introduction of the operating hand and forearm that version was considered unsafe. High forceps rotation and extraction, according to the modified Scanzoni maneuver described elsewhere, was then successfully accomplished and a full term living male baby weighing 3,580 Gm. delivered. There was a second degree laceration of the mother's perineum, which was repaired at once. The mother had an uneventful convalescence, and she and the baby were discharged well after thirteen days.

Of the fifty-nine podalic versions done in this series, thirty-three were in primiparous and twenty-six in multiparous patients. One mother, a primipara, died suddenly several hours after delivery from multiple pumonary emboli, making the maternal mortality among these patients 1.66 per cent.

The fetal mortality was eight babies, or 13.3 per cent; five were still-born and there were three neonatal deaths. Of the still-born babies, one was macerated; two died of asphyxia as a result of extremely difficult extractions in primiparous patients, and two died of asphyxia as a result of premature separation of the placenta. Cerebral hemorrhage, cebocephalus and an abnormally enlarged thymus gland were the respective causes of death in the remaining three babies. If the latter two babies and the macerated fetus are excluded, the fetal deaths due probably to accidents of labor or trauma of delivery were five, or 8.33 per cent.

Douglas Miller,[2] in his survey of 750 cases of occipitoposterior position, reports twelve podalic versions. In nearly all these cases this method of delivery "was employed as a last resort after labor had become seriously prolonged and some time after other methods of delivery had failed." Only three babies lived, and there were three maternal deaths.

In 102 cases of occipitoposterior position included in a recent report by Duncan [4] of the Royal Victoria Maternity Hospital, Montreal, the high forceps operation was performed five times with a fetal loss of 40 per cent. Version and extraction were employed on only forty-two occasions in a series of 4,205 confinements, and never for a persistent posterior position.

In the management of the posterior position, during the first stage of labor it is most necessary that close watch be kept for evidence of an unfavorable change in the condition of the baby as well as any threatened exhaustion in the mother. As a general rule, the first stage is prolonged in this malposition, and dilatation of the cervix is often slow, particularly if the membranes have ruptured early in labor. The mother's physical

3. Bill, A. H.: The Problem of the Vertex Occipitoposterior Position, New England J. Med. **199**: 1237-1243 (Dec.) 1928.

4. Duncan, J. W.: The "Radical" in Obstetrics, Am. J. Obst. & Gynec. **20**: 225-235 (Aug.) 1930.

agony and mental strain must be relieved by the free use of analgesics, her bladder and rectum emptied as required, and sustaining fluids administered in moderate amounts in the form of fruit juices and water.

It has been the habit at the Cleveland Maternity Hospital to be guided in the administration of analgesics not by the amount of dilatation in a primiparous patient but rather by her discomfort, As soon as the pains begin to cause too much discomfort, the routine use of scopolamine and morphine is begun. This sometimes must be fortified by rectal instillations of ether in a long first stage. As the first stage reaches its termination and during the entire second stage, inhalation analgesia is given; as the time of delivery approaches, the degree of anesthesia is increased to whatever depth is required. Rectal analgesia is used in the first stage of labor in multiparous patients, and when the progress is extremely slow, an occasional dose of morphine is supplemented. The second stage is handled precisely as in a primipara.

Occasionally, labor in a normal patient, in the face of ample support, does not progress rapidly enough, and to allow the patient to continue much longer would in all probability mean a postpartum hemorrhage or a subsequent dystocia due to uterine exhaustion or a contraction ring, with an increased hazard to the life of the baby. Manual dilation of an easily dilatable cervix and immediate delivery or the insertion of the hydrostatic bag to complete the dilation and subsequent delivery offer two efficacious methods of dealing with this situation.

Complete manual dilation of the cervix from approximately 9 cm. and delivery by version was done five times in the fifty-nine versions of this group, and the Voorhees bag was inserted twice. Three of the patients in whom manual dilation was done were primiparas who had been in active labor for twenty-four, thirty-six and forty-eight hours, respectively, and who had made no further progress after reaching a dilatation of approximately 9 cm. The fourth delivery was hastened by manual dilation and version because of evidence of fetal distress, and the fifth because of more than normal bleeding from a prematurely separated placenta. The indications for the Voorhees bag were extremely slow progress in a primipara and a multipara after twenty-four hours of labor. No babies were lost in these seven cases.

GROUP 3.—This group includes eighty-eight cases in which fetuses in persistent occipitoposterior positions were arrested below the pelvic brim but not below the spines of the ischia. In this group as well as in the 200 cases to follow, complete or partial forceps rotation played a most important rôle; in fact, more than 95 per cent of the fetuses in persistent posterior positions that were delivered vaginally as vertex presentations were so treated.

The method that is used at the Cleveland Maternity Hospital and that was introduced by Bill [5] is a modification of the original maneuver developed by Scanzoni in 1865. Correction of the malposition is accomplished by rotating the head with the forceps to an anterior position without traction, and then after a normal anterior position has been obtained the blades of the forceps are removed and reapplied to complete the delivery by extraction.

After careful manual dilation of the maternal soft parts, an accurate diagnosis is made of the position of the presenting vertex, by determining the relationship of the long sagittal suture and the anterior and posterior fontanels to the right or left oblique diameter of the maternal pelvis, whichever the case may be. In every instance cephalic application of the blades of the forceps is made. Before the handles are locked they are depressed, the blades being brought as near as possible in the long diameter of the fetal head. The handles are then raised, to increase flexion as much as possible, and carried around without traction in a sweeping circle so as to keep the blades in the same axis during the entire maneuver, thus avoiding lacerations to the pelvic floor and fascia. The fingers of the free hand are kept on the posterior fontanel during this rotation to detect any slipping of the blades that may result from an original faulty application.

When rotation is completed, enough downward traction is made to fix the head and prevent it from returning to a posterior position after the blades are removed. The blades are then removed and reapplied to the head in its normal anterior position, the posterior blade always being inserted first to prevent still further any tendency toward backward rotation. Final delivery is now accomplished with a minimum amount of force by the use of axis traction. Axis traction is obtained through the attachment of an especially designed traction handle to the handles of the solid blade forceps, which forceps are used almost exclusively.[6]

This method of rotation and delivery was used to terminate labor in seventy out of eighty-eight cases in which the head entered the pelvic cavity but did not descend below the spines of the ischia and in which the occiput remained posterior. Among these patients there were fifty-six primiparas and fourteen multiparas. The second of the two mothers who died in this entire survey was in this group. She was a primipara who had had a total labor period of less than eighteen hours and was delivered by the modified Scanzoni maneuver and forceps extraction, after episiotomy. There was no immediate unfavorable reaction, but she subsequently died from a pulmonary embolism.

Two babies were still-born and two died before their discharge from the hospital. The causes of death were cerebral hemorrhage in three of these cases, and the fetal heart tones in the fourth were not present before delivery.

In a little over 18 per cent of all fetuses in posterior positions that did not rotate spontaneously, the occiput was arrested after describing an arc of 90 degrees. This condition is referred to here as transverse arrest; sometimes referred to as "deep transverse arrest." The method followed for the delivery in such cases is, in most instances, a single cephalic application of the forceps in the transverse diameter of the pelvis, with the anterior edges of the blades parallel to the lambdoidal sutures and equidistant from them. The rotation is completed through a wide arc of 45 degrees in the same manner as previously given except that it is now unnecessary to remove and reapply the forceps. Extraction follows at once.

Infrequently one is confronted with an occipitoposterior position that has been arrested in the transverse diameter and in which the fetus cannot be rotated completely to the anteroposterior diameter by gentle instrumentation. In these instances the head is allowed to descend, with the aid of traction, in the oblique diameter until it reaches the perineum, when in nearly

5. Bill, A. H.: Vertex Occipitoposterior Positions with Special Reference to the Scanzoni Maneuver, Am. J. Obst. **71**: 486, 1915

6. Bill, A. H.: A New Axis Traction Handle for the Solid Blade Forceps, Am. J. Obst. & Gynec. **9**: 600 (May) 1925.

every case it will rotate with ease. However, it is sometimes necessary, when a narrowed pubic arch is encountered, to allow the head to be born in the oblique diameter, the ascending ramus of the ischium, instead of the symphysis pubis, being used as a fulcrum for the extending head. Episiotomy here will prevent a ragged laceration of the perineum.

In thirteen cases of this group delivery was accomplished by single forceps application and rotation. There was a contraction ring formation in one primipara who had a total labor period of nearly thirty hours, with a second stage of two. In this case the fetal heart sounds disappeared at the beginning of the second stage, resulting in a stillbirth.

Manual rotation is done very infrequently because of the necessity of displacing the head to a higher level in the pelvis to facilitate grasping it with the whole hand, because of the danger of prolapse of the umbilical cord and because the head is apt to return to its original posterior position before the forceps may be applied.

In this entire series of cases of persistent posterior positions, manual rotation and forceps extraction was done only twelve times—five times in this group. There were no mortalities.

Lacerations of the perineum or cervix necessitating immediate repair, or episiotomy, occurred sixty-four times in these eighty-eight cases. Twenty episiotomies were performed in sixty-eight primiparas; sixteen received first degree lacerations; eighteen, second degree lacerations, and there were two cervical lacerations. Of the twenty multiparous patients, six received first degree lacerations; one, second degree laceration, and episiotomy was done once. The lacerations occurred during extraction and were not incident to the maneuvers of rotation.

The fetal mortality for this group of eighty-eight was 5.68 per cent.

GROUP 4.—Two hundred fetuses in the persistent occipitoposterior position descended into the pelvic cavity, below the spines of the ischia. Of these 151 were delivered by the modified Scanzoni maneuver; 41 by a single application of the forceps for transverse arrest, and 7 were manually rotated and delivered by forceps. The remaining one case, through a grave error in diagnosis, was delivered as a persistent posterior case, with the resulting loss of the baby from cerebral hemorrhage. No mothers were lost in this group.

Four babies died among the 151 delivered by complete rotation and extraction; three of intracranial hemorrhage and one as a result of congenital atelectasis. Two babies were still-born among the forty-one cases in which the head was arrested in the transverse diameter and delivered by one application of the forceps and rotation. The cause of death in these two cases was asphyxia; one baby dying seven hours before the end of the second stage in a primiparous patient suffering from toxemia. No babies died of the seven delivered by forceps after manual rotation.

Less than 50 per cent of this entire group of 130 primiparas and 70 multiparas received perineal lacerations, including episiotomies. Fifty-four per cent of the primiparas received first or second degree lacerations, and episiotomy was performed in 13 per cent. Episiotomy was done only once among the multiparas and only 12 per cent received any sort of laceration. There were no third degree lacerations in this entire series of cases reviewed.

B. DELIVERED ABDOMINALLY, EIGHTEEN CASES

GROUP 5.—During the period over which this survey extends, there occurred eighteen cases of occipitoposterior position among as many patients who were delivered by abdominal cesarean section. Twelve of these patients were operated on for reasons that indicated abdominal delivery regardless of the position of the presenting part and have no direct bearing on this study except to make it consecutive. Among these twelve cases there were two cases of premature separation of the placenta; one case of placenta praevia; two patients with severe preeclampsia; one case of complete stenosis of the cervix, and six patients with generally contracted pelves, five of whom had had previous cesarean sections. There were no maternal deaths; one baby, two months premature, died.

GROUP 6.—During the prenatal observation of the six women, all primiparas, included in this group, there were no indications that labor would not proceed normally and that delivery would not be perfectly possible vaginally. Pelvic measurements seemed ample. However, all of these patients went into labor with the occiput in the posterior position, and despite labors of varying lengths of time the head would not engage in any case due to a relative disproportion, and there was little or no dilatation of the cervix. Cesarean section was done in every case with uneventful recovery of all of the mothers and with no fetal loss.

The average length of time during which these patients were in labor before cesarean section was decided on was sixteen and one-half hours. I believe that decision can be made in some doubtful cases in as short a time as six hours after labor has begun, and there seems to be little justification for the severe and exhausting test of labor which Danforth and Grier [7] set forth in their study of low cervical section. They hold that a fair test of labor "may be considered to have been had, when, after dilatation is complete and the membranes ruptured, pains of good force at intervals of not more than five minutes have occurred for not less than one hour."

FETAL MORTALITY

Table 2 demonstrates the several causes of fetal death in this series and the procedures in which they occurred. A total of 23 babies were lost out of 514 babies born—a mortality of 4.47 per cent, or 3.9 per cent for all full term babies. A further corrected mortality totaling 3.1 per cent, which excludes three premature babies, one macerated fetus, the monster, a neonatal death due to an enlarged thymus and a stillbirth due to atelectasis, may be said to be that due probably to the trauma of delivery or to an accident or complication of labor.

Vaux [8] reports 8 neonatal deaths and 5 stillbirths from all causes in his series of 212 occipitoposterior positions, and Caldwell,[9] quoting Damon, reported an infant death rate of 5.68 per cent in 475 in the persistent occipitoposterior positions at the Sloan Maternity Hospital.

Of the twenty-three infant deaths in this series, sixteen were caused by cerebral hemorrhage or asphyxia. Intra-uterine asphyxia occurred eight times: twice as the result of premature separation of the placenta, once

7. Danforth, W. C., and Grier, R. M.: Analysis of 124 Cases of Low Cervical Cesarean Section, Am. J. Obst. & Gynec. **20**: 405-410 (Sept.) 1930.
8. Vaux, N. W.: The Method of Delivery and End-Result of Two Hundred and Twelve Cases of Occiput Posterior Position, Am. J. Obst. & Gynec. **20**: 782-790 (Dec.) 1930.
9. Caldwell, W. E., in discussion on paper by Vaux (footnote 8).

of toxemia, twice during difficult versions in primiparous patients, and three times of unknown causes. Diagnosis of cerebral hemorrhage was made eight times: four times clinically and four times by autopsy observations. Of these eight cases, five occurred among patients in whom the second stage was prolonged over three hours.

TABLE 2.—*Causes of Fetal Death*

Method of Delivery	No. of Cases	No. of Fetal Deaths	Causes of Fetal Death: Prematurity	Asphyxia	Macerated, Cause Unknown	Cebocephalus	Enlarged Thymus	Fetal Atelectasis	Intracranial Hemorrhage
Spontaneous rotation	148	2							
Forceps extraction	147	1	1	..	..	..	..	..	..
Spontaneous delivery	1	1	1	..	..	..	..	..	..
Persistent posterior	348	20							
Internal podalic version	59	8	..	4	1	1	1	..	1
Modified Scanzoni (222)									
High forceps	1	0	..	..	..	..	..	..	..
High-mid or mid forceps	70	4	..	1	..	..	..	..	3
Low-mid or low forceps	151	4	..	..	..	..	..	1	3
One application (54)									
High-mid or mid forceps	13	1	..	1	..	..	..	..	..
Low-mid or low forceps	41	2	..	2	..	..	..	..	..
Manual rotation	12	0	..	..	..	..	..	..	..
As posterior, low forceps	1	1	..	..	..	..	..	..	1
Cesarean section	18	18	1	1	1	..	..	..	..	..
Total	514	514	23	23	3	8	1	1	1	1	8

Fractures of the skull did not occur as far as I was able to ascertain, and the fetal loss from all causes among babies delivered by the modified Scanzoni maneuver was 3.6 per cent. Note is made that craniotomy was never necessary in this series of cases of posterior position and that this destructive operation has been performed but three times among 5,646 staff patients delivered since 1923, twice the indication being hydrocephalus.

CONCLUSIONS AND SUMMARY

1. The vertex occipitoposterior position is still considered a serious complication of labor, and rightfully so.

2. Accurate diagnosis is the most important factor in the proper management of this malposition, and should be simple. Abdominal palpation and auscultation, combined with rectal examinations, and a close observation of the course of labor, offer excellent aids toward accurate diagnosis in the great majority of cases. Vaginal examination is rarely essential.

3. The occipitoposterior position occurred among 29.8 per cent of the 1,723 dispensary cases of vertex presentation in the Cleveland Maternity Hospital over a period of nearly twenty-one months, and the greatest majority of these were delivered by the resident staff. The ratio of right posterior to left posterior was as 1 to 0.82.

4. Only a small minority of fetuses in persistent occipitoposterior positions will rotate spontaneously after from two to two and one-half hours of second stage labor, and the fetal loss from intracranial hemorrhage after more than three hours of second stage labor warrants correction of the malposition and delivery, well before this period of time has elapsed.

5. Internal podalic version is the method of choice for delivery of fetuses in persistent posterior positions in which the greatest diameter of the head is arrested at the pelvic brim. The high forceps operation is almost never done.

6. The modified Scanzoni maneuver of Bill is a completely satisfactory method of rotating the persistent occipitoposterior fetus which has descended below the brim of the pelvis and is attended by a minimum of danger to the child, while the maternal perineum receives no undue trauma or laceration incident to rotation. Perineal lacerations may occur only as a result of subsequent extraction.

7. A certain number of fetuses in posterior positions are arrested after describing an arc of 90 degrees and remain in the transverse diameter of the maternal pelvis. Rotation may be satisfactorily completed and extraction may follow by a single cephalic application of the forceps.

8. Manual rotation is not recommended because of the complications that may attend displacement and manipulation of the head. Where these complications do not arise, the results are good.

9. Delivery of a fetus in the persistent occipitoposterior position as such is unnecessary and is attended by danger to the child.

10. One hundred and forty-eight fetuses in occipitoposterior positions of the 514 of this series rotated spontaneously. The remaining 366 were delivered as follows: 59 by internal podalic version; 276 were rotated by forceps; 12 were rotated manually and extracted by forceps, and one was delivered in a persistent posterior position. The remaining 18 were delivered by cesarean section. The fetal mortality for all full term babies from all causes was 3.9 per cent. Pulmonary emboli caused the two maternal deaths.

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NERVOUS SYMPTOMS AS EARLIEST MANIFESTATIONS OF CARCINOMA OF THE PANCREAS *

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The occurrence of nervous and mental symptoms of varying degree is common in the course of visceral disease in general and in disease of the heart, the lungs and the abdominal organs in particular. These symptoms usually occur in fairly advanced stages of cardiovascular-renal disease, in pulmonary disease and in various gastro-intestinal abnormalities, being usually reactions on the part of the central nervous system to the toxic or metabolic changes produced by the progressive visceral condition. The character and intensity of the nervous symptoms further depend on the previous personality of a given patient; abnormal tendencies appear accentuated or latent psychotic tendencies become activated under the stress and strain of the existing physical disability. The nervous manifestations in these cases are further modified by the social and economic circumstances of the patient, and psychogenic factors play a large rôle in the symptomatology of these organic cases.

The character of the mental symptoms also varies with the location of the disease. Thus it is common knowledge that pain referred to the abdomen is more liable to cause depression than pain in any other region. Hence it is found that the pain of aortic disease, which

* From the Department of Neurology, University of Pennsylvania Graduate School of Medicine.

is referred to the upper part of the chest, is less frequently associated with mental depression than that of a double mitral disease which is referred to the upper abdominal area. Similarly in phthisis, in the early stages, when the disease is limited to the apexes, the patient is cheerful and hopeful; but when the disease invades the lower lobes and the pain is referred to the abdomen, he becomes depressed and fearful of impending harm. According to Henry Head,[1] all mental phenomena arise in association with severe or prolonged pain resulting from disease of the viscera and referred to the body wall. In the light of present knowledge it may be stated that mental phenomena also arise in association with states of toxicity and exhaustion.

Carcinoma of the abdominal organs, by reason of mechanical pressure and interference and its toxic effects and metabolic changes, commonly causes nervous and mental disturbances, especially depression and anxiety, quantitative intellectual reduction and insomnia associated with pain. All these changes, however, usually become evident only when the disease is in a fairly advanced stage or when there is a history of previous mental or nervous disease, when the cancer, even in the early stages, acts as a precipitating cause in an individual predisposed to mental disease. Therefore, the personal observation in the past eight years of four patients with carcinoma of the pancreas in whom there was no history of previous nervous disease and whose only early manifestations have been largely psychic, appeared to justify the presentation of a brief report of these cases. The striking similarity in these early manifestations of a marked abdominal disease is considered as another interesting observation perhaps worthy of clinical notice.

REPORT OF CASES

CASE 1.—*A previously healthy man, aged 56, complained of backache, anorexia, general weakness and fatigability and especially insomnia, anxiety and depression. The case was diagnosed as neurasthenia and spondylitis because of negative objective observations. In the course of three months the emotional disturbances were gradually replaced by nausea, vomiting and other gastric symptoms and by roentgenographic evidences of a pyloric tumor. At operation there was found a carcinoma of the head of the pancreas.*

History.—S. C., a man, aged 56, a merchant with an irrelevant family history, had smallpox in childhood and otherwise a negative past medical history, never had any nervous disease and was well adjusted both socially and economically. He complained in August, 1922, of general weakness, fatigability, anorexia, insomnia and a vague pain in the dorsolumbar region. These symptoms came on very gradually in the past few weeks and were accompanied by a feeling of depression and by crying spells for which neither the patient nor his family could account on any psychogenic grounds. The patient had a feeling of anxiety of some imminent danger to his life. Apart from the backache he had no pain, and, excepting for anorexia, no gastro-intestinal symptoms.

Examination.—The patient was rather pallid, was fairly well nourished, and weighed 152 pounds (69 Kg.). Except for a few carious teeth and somewhat enlarged tonsils, the general somatic and neurologic examinations were negative. The blood pressure was within normal limits; there was no disturbance of memory, perception or judgment. He appeared anxious and depressed but could give no logical reason for his feelings. The depression was unaccompanied by any feeling of unreality.

The urine showed no abnormalities. The blood count, September 12, revealed: erythrocytes, 4,200,000; hemoglobin, 84 per cent; leukocytes, 8,400, and a normal differential count. No chemical analysis of the blood was made. Roentgenographic examination of the chest and gastro-intestinal tract revealed no abnormalities except an ostearthritis of the dorsolumbar spine. In consultation with an internist, a diagnosis of neurasthenia and spondylitis was made.

Course.—Several teeth with apical abscesses were removed, but this did not improve the condition. The patient's depression continued; the insomnia was not overcome by the ordinary somnifacients and he began to lose weight. In November he began to have spells of vomiting and nausea with no relation to the intake of food. In December the gastro-intestinal symptoms became aggravated, but he appeared less depressed and anxious. A gastro-intestinal reexamination, December 15, revealed a filling defect in the pyloric region, which was diagnosed as carcinoma of the stomach. He was admitted to the Lankenau Hospital, Jan. 23, 1923, where, despite the roentgenographic observations, a preoperative diagnosis of cancer of the pancreas was made by Dr. Deaver. At laparotomy, a carcinoma of the head of the pancreas with metastases to the liver and ascites were found. The patient made a good surgical recovery. There appeared shortly after the operation evidences of portal obstruction and soon thereafter general anasarca. Although he had considerable pain, the depression was now replaced by apathy, which lasted until his death, February 27.

CASE 2.—*A previously healthy woman, aged 59, developed insomia, nervousness, anxiety, depression, lack of appetite and general weakness, with vague abdominal discomfort without any localizing objective observations. The case was regarded as a neurosis for five months, after which time the nervous symptoms gradually subsided and there appeared abdominal pain and a hard mass in the epigastrium which, on operation, proved to be a carcinoma of the body of the pancreas.*

History.—E. C., a woman, aged 59, with an irrelevant family history, had arthritis eighteen and eight years ago, and pyelitis three years ago without any history of deviation in personality or psychotic episodes. In April, 1928, she began to lose appetite, could not sleep, and became restless, nervous and anxious. There were vague lower abdominal pains, and the constipation that had existed for ten years became more pronounced. In July she was admitted to a teaching hospital, where exhaustive investigations, including complete gastro-intestinal studies, failed to disclose any organic disease and she was discharged early in September with a diagnosis of neurasthenia and anxiety neurosis.

Examination.—Examination about the middle of September revealed the following: The patient complained of insomnia, general weakness, nervousness, a feeling of some imminent danger to her life, depression with crying spells, lack of appetite, and vague abdominal pain not related to the intake of food. There was no disturbance of perception or of memory. She looked somewhat reduced in weight and had actually lost about 10 pounds (4.5 Kg.) since April; she looked pallid, although the blood picture indicated only a very slight secondary anemia. There were no other observations of any significance.

Course.—At first she gained 3 pounds (1.4 Kg.) with rest in bed and the administration of small doses of bromides and phenobarbital but otherwise continued with the same complaints plus additional abdominal pain, which was now located in the epigastrium, was constant and had no definite relation to meals. There was also a sharp inconstant pain in the left inguinal region, radiating to the back and throughout the abdomen. By the early part of November the pain became pronounced; she lost considerable weight, and a hard mass, which moved with respiration, could be felt in the left hypochondrium. Curiously, at this time she became less anxious and depressed and was rather apathetic and listless. She was admitted to the Graduate Hospital, November 13 (service of Dr. Henry Bockus), where the following laboratory observations were recorded: mild secondary anemia; erythrocytes, 3,590,000; hemoglobin, 70 per cent; Wassermann test, negative; sugar, 102; urea, 12; cholesterol, 220. Gastric analysis showed hyperacidity, bile drainage and catarrhal gastro-intestinal disease. Examination of the kidneys revealed a faint trace of albumin. Sigmoidoscopic examination showed

1. Head, Henry: Goulstonian Lectures for 1901.

chronic sigmoproctitis. Roentgenograms revealed a spastic esophagus and stomach; duodenal delay of the second and third portions; spastic colon; constant constriction at the splenic flexure of the colon, which was approximately 4 or 5 inches lower than normal; and a calcified node in the lower lobe of the right lung. The gynecologic examination was negative for cancer. Laparotomy was performed, December 11, by Dr. J. B. Carnett. A carcinoma of the pancreas with a minimum of involvement of the head was found. The pancreas was a little larger than is normal; the duodenal wall was thickened and dilated; the body of the pancreas was hard and nodular. There were enlarged glands along the aorta below the pancreas. One nodule the size of the end of the finger was found in the mesosigmoid just at the rim of the true pelvis. The spleen was normal.

The patient received radium treatment, made a satisfactory surgical recovery, and was out of bed within a month. She continued having pain requiring the use of opiates. There was no disturbance in the sugar metabolism noted on her discharge from the hospital, Feb. 5, 1929. The mental attitude continued to be one of apathy. She died at home within a few weeks.

CASE 3.—*A previously healthy man, aged 50, commenced to have violent eructations of gas, insomnia, restlessness, physical and mental fatigability, depression, anxiety and crying spells, anorexia and vague abdominal discomfort. His case was diagnosed as an anxiety neurosis devoid of organic cause. In several months he developed internal hemorrhage and at operation there was found a tumor in the region of the head of the pancreas. The nervous manifestations continued unabated until death.*

History.—M. S., aged 50, a lawyer, with an irrelevant family history, seven years previously had had an intestinal fever of several weeks' duration with a stormy convalescence but with complete recovery. He was a successful lawyer and district attorney of the high-strung American type, who worked under high pressure, smoked twelve or fourteen cigars daily, and consumed occasionally large volumes of beer. However, he was in good health until early in January, 1930, when he developed insomnia, violent eructations of gas with vague abdominal discomfort, general weakness, mental and physical fatigability, anxiety, depression, crying spells and loss of appetite. These symptoms were ascribed by his family and friends as being due to financial reverses incident to the condition of the stock market in the fall of 1929, although the patient denied it as a causative factor and insisted that there was something wrong in his abdomen.

Examination.—When seen during the middle of January, the patient was well developed and well nourished, weighing about 168 pounds (76 Kg.) and having a rather sallow complexion. He had a number of carious teeth and large, infected tonsils. There was a bilateral nasal obstruction. The examination of the chest and abdomen was entirely negative; the blood pressure was within normal limits. There was no evidence of organic neurologic disease. Mentally, he was quite clear, there being no disturbance in the sphere of memory, orientation or judgment. There was no feeling of unreality. The patient was very restless, easily fatigued, both mentally and physically, depressed, cried with or without provocation, and was anxious about his condition, feeling that he had some organic abdominal disease. He was particularly fearful of the nights, when his restlessness and depression became pronounced.

Laboratory examination revealed the following: The urine, apart from a trace of albumin, was essentially normal; sugar, 96.1 mg.; urea nitrogen, 28.6. The Wassermann reaction was negative; hemoglobin, 83 per cent; erythrocytes, 4,275,000; white blood cells, 7,700; polymorphonuclears, 61 per cent; lymphocytes, 34 per cent; mononuclears, 1 per cent; eosinophils, 4 per cent. Gastric analysis showed normal free hydrochloric acid with slightly high total acidity. Biliary drainage revealed nothing of serious consequence. The roentgen examinations of the entire gastro-intestinal tract were negative for organic disease. The sinuses were normal and there were a number of apical abscesses in the remaining teeth.

Course.—It was felt that an organic abdominal condition was being dealt with and the case was referred within a period of two weeks to two keen internists of many years' experience, both of whom insisted that the case was one of neurosis, produced by the infections of the teeth and tonsils. With this in mind, the patient was admitted to the Graduate Hospital, February 20, for the removal of the teeth and a rest cure. All the teeth were removed under nitrous oxide anesthesia and a culture showed them to contain *Streptococcus hemolyticus*. The patient complained little about the pain incident to the extraction of the teeth, but his nervous symptoms, especially insomnia, restlessness, anxiety and depression, became progressively worse. His sensorium remained clear throughout and at no time had he any feelings of unreality. Hypnotic drugs, such as amytal, allonal and barbital, did not induce sleep. His appetite showed no tendency to improve, but with forced feeding there was no loss of weight. He was discharged from the hospital, March 16, and went to the seashore with the hope that the change of environment might have a favorable influence. Early in April he developed evidences of internal hemorrhage and was admitted to the University of Pennsylvania Hospital in a critical condition. He apparently had lost a large amount of blood, and his nervous symptoms, if anything, became much worse. Roentgen examination a few days after admission to the hospital revealed a large duodenal ulcer. The patient continued having internal hemorrhages and on April 28, Dr. Eliason performed a laparotomy, at which time it was found that the patient had a tumor in the region of the head of the pancreas. An excised lymph node was examined and found to be carcinomatous. A posterior gastrojejunostomy and a cholecystostomy were performed. The patient had a stormy surgical recovery and until his death in July, 1930, continued having most pronounced depression, irritability and insomnia, which were hardly alleviated by the use of large doses of opiates.

CASE 4.—*A previously healthy woman, aged 53, gradually developed general weakness, anorexia, loss of weight with marked insomnia, anxiety and depression, unassociated with any discernible organic signs and diagnosed as a depression. In several months there appeared ill defined gastro-intestinal symptoms, and the patient died of an intercurrent pyelonephritis. Prior to her death, a tumor could be palpated in the epigastrium to the left of the midline.*

History.—R. L., aged 53, a housewife, with an irrelevant family history, complained, Oct. 21, 1930, of general weakness, progressive loss of weight, anorexia, pain in the right arm and shoulder, trembling of the hands, and especially of insomnia, depression, anxiety and crying spells. The patient had been married twenty-five years, had four children, and never had any serious diseases, injuries or operations. She was not at any time regarded as a nervous person. About five years ago she had "rheumatic" pain in the right shoulder with recovery in a few months. About four years ago she had gone through the menopause with very little discomfort. For the past two years there had been progressive loss of weight, more pronounced within the past year. In the past few months there appeared the aforementioned symptoms, which were ascribed by the family physician to hypertension. She was put on a salt poor, nitrogen low diet and became much worse. In the past five months she lost 30 pounds (14 Kg.). She stated that her appetite was so poor that the very sight of food disgusted her. She could never tolerate milk, raw or boiled, small quantities of which caused a diarrhea. Apart from that there had been no suggestive gastro-intestinal symptoms. She complained most bitterly of the insomnia, the anxiety and the anorexia.

Examination.—The patient appeared markedly undernourished, weighing only 104 pounds (47 Kg.). The skin was pallid; there was no glandular enlargement. The few remaining teeth appeared in good condition. There was no thyroid enlargement. The eyes appeared rather staring but there was no von Graefe's sign. The heart was slightly enlarged downward and to the left, with a rate of 96, but was otherwise normal; blood pressure was 162 systolic and 104 diastolic. The lungs and the abdomen showed no abnormalities. No evidence of organic neurologic disease was present. Mentally, she presented no disturbances in the sensorium, being quite normal as to memory, orientation and perception. There was no feeling

of unreality. The mood was one of depression with anxiety; she feared the nights because of inability to sleep and the restlessness incident to the insomnia. She often had crying spells, for which she could give no adequate reason although at times she expressed the fear that there was something radically wrong with her health. The family ascribed her nervousness to the homesickness for her only son who, a year previously, had married and moved to some distant town. The patient, however, denied this as the cause of her difficulties. The depression and anxiety became worse in the latter part of the day and in the evening, and was unassociated with any ideas of self-accusation or any other delusional trends.

Investigation, October 24, revealed the following: urinalysis, negative; erythrocytes, 4,040,000; hemoglobin, 74 per cent; leukocytes, 8,000; polymorphonuclears, 64 per cent; lymphocytes, 34 per cent; eosinophils, 2 per cent; blood sugar, 95 mg.; urea nitrogen, 20 mg.; blood Wassermann reaction, negative. A roentgenogram of the skull, including the sinuses, and of the chest revealed nothing of any significance.

Course.—The patient was examined after the completion of the laboratory investigations by two competent internists, who agreed that the condition was one of neurosis unassociated with any structural background. Despite this diagnosis and very careful nursing, the patient continued losing weight and in addition developed heartburn, upper abdominal pain without relation to the intake of food, and occasional nausea and vomiting. The vomitus did not contain blood. A roentgen examination, November 19, revealed no abnormality in the esophagus, stomach or duodenum. The blood count at this time showed a decrease, the erythrocytes falling to 3,960,000 and the hemoglobin to 64 per cent, with the appearance of the more definite physical complaints and signs. The depression and anxiety seemed to lessen, but the insomnia, despite the large doses of the barbital group of drugs, remained unabated. March 24, the patient developed dysuria, hematuria, chills and fever and a toxic jaundice with delirium. She died, November 26. Prior to her death, when there was further considerable loss of flesh and complete abdominal relaxation due to her comatose state, there was no difficulty in palpating a tumor mass in the epigastrium to the left of the midline. This mass was firm and did not move with respiration. An autopsy could not be procured.

ANALYSIS OF CASES

In all four cases, after fairly complete investigations, the diagnosis of a functional condition had been made in the early stages by competent internists. The diagnosis was based on marked emotional disturbances in the absence of any objective clinical or laboratory observations. Three of the four cases (1, 2 and 3) revealed at operation carcinoma of the pancreas, cases 1 and 3 in the region of the head and case 2 in the body and tail of the pancreas. Case 4 was not verified, but the position of the tumor, its immobility with respiration and the negative roentgenographic observations in the esophagus, stomach and duodenum only a few days prior to death make the diagnosis of a lesion in the body of the pancreas more than probable.

All four patients had family histories free from any mental disease or definite psychopathic trends. None of these patients gave any previous history of mental disease, neurotic or psychopathic tendencies or social maladjustment.

In all four cases the nervous symptoms antedated any of the definite gastro-intestinal symptoms and signs by several months; in case 1 by three or four months, in case 2 by four months, in case 3 by three months, and in case 4 by about six to eight months. In cases 1 and 2 the anxiety and depression became ameliorated with the appearance of the more definite gastro-intestinal manifestations, these patients becoming somewhat apathetic. In cases 3 and 4 the nervous symptoms remained unabated until death.

There appeared to be a striking similarity in the nervous symptoms in all these patients. They all had an obstinate insomnia not ascribable to pain and not relieved by the usual somnifacients; all of them had depression with crying spells and marked anxiety, which everybody, excepting the patients, tried to ascribe to psychogenic causes. The anxiety was probably the most striking nervous symptom observed; the patients were convinced of some imminent physical danger which no amount of rest, suggestion or persuasion could allay. These emotional disturbances were unaccompanied by a feeling of unreality or any other disturbances of perception, nor were there any disturbances in the spheres of memory, orientation or judgment. Of the other symptoms, anorexia, loss of weight, fatigability and weakness occurred in varying degrees in all cases.

All of the patients appeared pallid or sallow when first seen but showed no appreciable reduction in the red blood count or in the hemoglobin. The anemia appeared months later simultaneously with the appearance of the gastro-intestinal manifestations. In cases 2, 3 and 4 the blood sugar and the urea nitrogen were within normal limits; in case 1 this was not investigated. In cases 1 and 3, roentgenograms did not help in localization of the disease until the onset of the pronounced gastro-intestinal disturbances. Cases 2 and 4 gave no localizing information at any time.

COMMENT

The occurrence of the symptom complex of depression, anxiety, insomnia with anorexia and loss of weight without any visceral or other organic diseases is not uncommon at any age with or without any hereditary history, but usually with some psychogenic cause such as business reverses, emotional shock or severe disappointment. This is particularly true of the so-called involution psychoses which occur in women between 40 and 50 years of age and in men about a decade later—the age of the patients here reported. However, while the involution states present the depression and anxiety, there is always a variable degree of disturbance in reasoning and judgment with trends toward delusion, especially somatic delusions, self-accusation and suicidal tendencies (not evident in the cases reported). Also in involution psychoses, as well as in reactive depressions of psychogenic origin, and in manic-depressive depressions, there is almost always a feeling of unreality and of other disturbances in perceptions which were absent in these cases. Similarly the presenile arteriosclerotic cases show emotional disturbances of a depressive type but often in association with disturbances of memory, periods of confusion, and similar manifestations not observed in these cases.

It was the absence of the feeling of unreality, of disturbances of reasoning and judgment, of disturbance of memory and orientation that made the symptom complex in the four cases so striking. In only two of the cases (cases 3 and 4) were there produced any psychogenic causes and these were stated by the patients themselves to be irrelevant. Furthermore, psychogenic causes are at best unreliable factors and should at all times be utilized only when more trustworthy physiopathologic factors are ruled out.

However, no attempt is made to create any new symptom complex as an early sign of carcinoma of the pancreas. In the first place, the number of cases observed is too small for definite conclusions and the subject requires further observations and comparisons

before it can be established as of definite clinical value. In the second place, the group of symptoms described is difficult to explain, so little is known about the emotions in normal health and still less in relation to visceral and somatic disease. Emotions are feeling tones that arise from perception of certain environmental or internal situations and are accompanied by organic sensations and physiologic changes, such as those of metabolism and muscular tonus; James [2] maintained that emotions are the sensations of bodily changes as registered in the cortex. A given form of stimulation, as the sight of an open bloody wound, is registered in the body with a feeling of ill being and possibly nausea and is registered in cortical imagery as the emotion of disgust. According to him, emotions are sensory qualities arising from visceral or bodily changes duplicated in imagery, just as sensory quality of special senses are duplicated in imagery; e. g., stimulation of the special organ by light is registered in the cortical imagery as light. He referred to the thoracic and abdominal organs as "the sounding board" of the emotions and regarded "emotion as a consequence, not the cause of bodily expression." [2] Lange [3] stresses the importance of the vasomotor apparatus in emotions. James and Lange held that emotions are closely related to visceral functions under control of the cortex. Cannon [4] considered the thalamus as the principal center of emotions. However complicated the physiology of emotions appears, this much would seem fairly well established: Emotions have a definite influence on visceral functions, as was reported in clinical observations by Burton [5] as far back as 1621. Cannon [6] has shown by a series of painstaking animal experiments that intense emotions such as fear, hunger, pain and rage have a definite effect on digestion, increase the amount of epinephrine and sugar in the blood, hasten coagulation of the blood and increase the red cells, and that this action has a definite relation to the activity of the vegetative nervous system. Clinically, it is common knowledge that abnormal emotional states have a decided influence on visceral function and the subject is discussed by Alvarez [7] and by Ziegler.[8] Sufficient experimental and clinical evidence has accumulated to establish that emotions influence the secretory and motor functions of various organs and the chemical composition of the various fluids of the body. On the other hand, that various visceral diseases can produce abnormal emotional states is also generally recognized and is readily understandable if one bears in mind that the viscera are the registration organs of emotions (James-Lange theory). Just how these abnormal emotional states, such as anxiety and depression, come about in individual diseases is not known. Head [1] stressed the importance of pain arising in the viscera and referred to the body wall as a cause of depression and anxiety. There can be little doubt that chemical changes in the body have a causative relation to abnormal emotional states, common examples being the depressions of hyperthyroidism and the anxiety and restlessness of hypoglycemia. However, in the cases herein reported there were in the first few months of illness relatively little pain and no changes in the chemical composition of the blood to account for the emotional disturbances, and no explanation can be given for their occurrence. The cases are recorded, with all the shortcomings, with the hope that future investigations may explain these phenomena.

2. James, William: Principles of Psychology, New York, Henry Holt & Co. **2**: 449-454, 1927.
3. Lange, C.: Ueber Gemüthsbewegungen, translated by H. Kurella (Leipzig, 1887), quoted by James (footnote 2).
4. Cannon, W. B.: Bodily Changes in Pain, Hunger, Fear and Rage, New York, D. Appleton & Co., 1929, pp. 360-376.
5. Burton, Robert: The Anatomy of Melancholy, first published in London in 1621; London, 1886, p. 443.
6. Cannon: Bodily Changes in Pain, Hunger, Fear and Rage, pp. 1-192.
7. Alvarez, W. C.: Ways in Which Emotions Can Affect the Digestive Tract, J. A. M. A. **92**: 1231 (April 13) 1929.
8. Ziegler, L. H.: Clinical Phenomena Associated with Depression, Anxiety and Other Affections or Mood Disorders, Am. J. Psychiat. **8**: 849 (March) 1929.

SUMMARY

Depression with crying spells, anxiety, insomnia, anorexia, loss of weight and weakness without feeling of unreality and other disturbances of perception, memory and judgment have been observed in four instances of carcinoma of the pancreas in previously healthy persons.

These symptoms antedated any definite gastro-intestinal symptoms and objective observations by from three to eight months.

No explanation is offered for the occurrence of these phenomena. The relation between visceral changes and abnormal emotional states is referred to.

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THE COMBINED USE OF DIGITALIS BODIES AND EPHEDRINE HYDROCHLORIDE

EFFECT ON THE UNANESTHETIZED DOG *

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Since the work of Chen [1] on ephedrine in 1924, this drug has been used in many and diversified conditions, and its field of usefulness continues to widen. In many of these conditions other drugs are used at the same time, such as digitalis or drugs of that series.

It was observed in a few patients who received therapeutic doses of digitalis that untoward effects appeared when small daily doses of ephedrine (one-sixth grain, or 11 mg., daily) were used, and we had reason to assume that fatal results might ensue from the simultaneous use of the two drugs. A clinical study in which measurable physiologic phenomena could be obtained was not justified because of the untoward results observed in several patients. The study reported here was accordingly made on dogs, in order to determine whether there was any synergism between the two drugs. Such a synergistic action was found, about half the median lethal dose of each drug producing a fatal result when the two drugs were used at the same time. As will be noticed from tables 1 and 2, the median lethal dose is approximately two thirds of the lethal dose obtained by other investigators working under different conditions and with different experimental methods.

Chen [2] mentioned in one of his papers that the combined effect of digitalis and ephedrine had not been investigated. The same author observed that ephedrine depressed the conducting mechanism of the heart from above downward, producing eventually ventricular extrasystoles, then ventricular tachycardia, and finally ventricular fibrillation.[3] Since the two drugs are often

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1. Chen, K. K., and Schmidt, C. F.: J. Pharmacol. & Exper. Therap. **24**: 339 (Dec.) 1924.
2. Chen, K. K., and Schmidt, C. F.: The Action and Clinical Use of Ephedrine, J. A. M. A. **87**: 836 (Sept. 11) 1926.
3. Chen, K. K., and Meek, W. J.: J. Pharmacol. & Exper. Therap. **28**: 31 (July) 1926.

used simultaneously in the treatment of the same patient, it seemed highly desirable to determine whether any untoward effects ensued from their combined use.

PROCEDURE

The drugs used were ephedrine hydrochloride, Digilutea, ouabain and digitol.

Digilutea was chosen because one of us found, after using numerous digitalis preparations, that this drug gave satisfactory and consistent results. The results were checked with ouabain because it could be obtained in pure form, although it was known that its action is different in many respects from digitalis. This is in agreement with Burn,[4] who criticizes its use as a standard for digitalis compounds.

Unanesthetized dogs were used throughout the work. Each drug was assayed by a single intravenous injection into the external saphenous vein, a definite dose per kilogram being used. We determined as accurately as possible the dose that killed 50 per cent of the animals in twenty-four hours and arbitrarily chose this as the median lethal dose.[5]

We then gave a dose of Digilutea significantly below the median lethal dose, determined by our assay, to a series of dogs, and followed this in half an hour with varying doses of a 5 per cent ephedrine hydrochloride solution. In another series of dogs, ouabain was used instead of Digilutea. Both series were repeated with this difference: that ephedrine hydrochloride was given first and followed in half an hour by the Digilutea or ouabain. The solution of ouabain was used within eighteen hours of preparation and kept in the ice chest when not in use.

TABLE 1.—*Assay of Ephedrine Hydrochloride by a Single Intravenous Injection* *

Dog		Ephedrine Sulphate		Death	
No.	Weight, Kg.	Mg. per Kg.	Total Mg.	Time	Type
1	5.9	35	206	Lived	
2	4.55	35	159	Lived	
3	9.0	35	315	Lived	
4	9.55	40	382	Lived	
5	10.9	40	436	Lived	
6	5.0	40	200	Lived	
7	5.9	40	236	Lived	
8	8.2	40	328	Lived	
9	13.6	40	545	3 min.	Ventricular fibrillation
10	11.8	40	470	3 min.	Ventricular fibrillation
11	3.2	40	128	8 hr.	
12	5.0	50	250	3 min.	Ventricular fibrillation
13	8.2	60	490	3 min.	Ventricular fibrillation

* Five out of eight dogs lived with a dose of 40 mg. per kilogram. We considered this as our median lethal dose.

TABLE 2.—*Assay of Digilutea* *

Dog		Digilutea		
Number	Weight, Kg.	Cc. per Kg.	Total Cc.	Time of Death
1	10.45	0.3	3.14	6 hours
2	8.42	0.35	2.94	Lived
3	9.1	0.4	3.64	Lived
4	7.0	0.42	2.94	9 hours
5	9.55	0.42	4.01	4 hours
6	11.8	0.42	4.96	3 hours
7	5.0	0.42	2.1	Lived
8	4.5	0.42	1.89	Lived
9	9.55	0.42	4.01	Lived
10	10.0	0.45	4.5	9-20 hours
11	10.0	0.5	5.0	9-20 hours
12	5.92	0.55	3.26	9 hours

* Three out of six dogs died with a dose of 0.42 cc. per kilogram. We considered this as our median lethal dose although knowing that by this method our figure would appear low.

4. Burn, J. H.: Methods of Biological Assay, London, Oxford University Press, 1928.
5. Trevan, J. W.: Proc. Roy. Soc., series B **101:** 483 (July) 1927.

RESULTS

The assay of ephedrine hydrochloride is given in table 1. Five out of eight dogs that received a dose of 40 mg. per kilogram lived. We considered this as our median lethal dose.

Table 2 illustrates the assay of Digilutea. In this case we considered the median lethal dose to lie in the region of 0.42 cc. per kilogram in the unanesthetized dog. We realize that this figure may be low and as such is wholly dependent on the method of assay.

From data presented in table 3 we concluded that the median lethal dose of ouabain is approximately from 0.10 to 0.12 mg. per kilogram. It is interesting to note that this assay checks closely with an assay made by Dr. Van Dyke [6] by the cat method as modified by Burn [4] using the fall of blood pressure as a criterion of toxicity.

The results of the combined use of Digilutea and ephedrine hydrochloride are given in table 4. It will be noticed that doses of ephedrine constituting about half the median lethal dose killed most of the animals in the presence of about half the median lethal dose of digitalis or ouabain. In those animals in which death occurred in approximately three minutes following the injection of the second drug, the animals went into a state of extensor rigidity with opisthotonos similar to the decerebrate rigidity described by Sherrington.[7] The animal then relaxed and occasionally made a few respiratory movements in the absence of any palpable

TABLE 3.—*Assay of Ouabain by a Single Intravenous Injection* *

Dog		Ouabain		Death	
No.	Mg. per Kg.	Mg. per Kg.	Total Mg.	Time	Type
1	10.0	0.04	0.4	Lived	
2	8.65	0.05	0.433	Lived	
3	5.9	0.06	0.355	Lived	
4	5.9	0.07	0.414	Lived	
5	5.9	0.08	0.473	Lived	
6	11.4	0.0925	1.05	Lived	
7	7.4	0.10	0.74	Lived	
8	7.3	0.10	0.73	Lived	
9	11.4	0.10	1.14	Lived	
10	10.0	0.10	1.0	Lived	
11	5.9	0.10	0.59	4 hr.	
12	10.4	0.10	1.04	1½ hr.	
13	11.4	0.111	1.27	22 hr.	
14	4.55	0.12	0.545	Lived	
15	9.55	0.14	1.34	1 hr. 20 min.	
16	5.9	0.16	0.94	27 min.	Ventricular fibrillation
17	4.55	0.18	0.82	18 min.	Ventricular fibrillation
18	8.2	0.20	1.64	25 min.	Ventricular fibrillation

* We consider the median lethal dose to be about 0.12 mg. per kilogram. The ouabain was furnished by the U. S. Bureau of Standards.

TABLE 4.—*Effect of Intravenous Injection of Sublethal Doses of Ephedrine Hydrochloride and Digilutea* *

Dog		Digilutea		Ephedrine Sulphate		Death	
No.	Weight, Kg.	Cc. per Kg.	Total Cc.	Mg. per Kg.	Total Mg.	Time	Type
1	10.0	0.3	3.0	20	200	9-20 hours	
2	5.45	0.3	1.64	20	109	Lived	
3	6.8	0.3	2.02	20	136	9-20 hours	
4	5.45	0.3	1.64	20	109	Lived	
5	7.27	0.3	2.18	20	145	10 min.	
6	4.5	0.3	1.36	25	114	9-20 hours	
7	6.83	0.3	2.02	25	170	7½ hours	
8	5.0	0.3	1.5	25	125	3 min.	Ventricular fibrillation
9	12.7	0.3	3.83	30	383	3 min.	Ventricular fibrillation
10	7.27	0.3	2.18	30	218	9-20 hours	
11	7.72	0.3	2.32	30	232	9-20 hours	

* The ephedrine hydrochloride was given half an hour after the injection of Digilutea in each case. Two of the eleven dogs used lived.

6. Van Dyke, Harry: Personal communication to the authors.
7. Sherrington, C. S.: J. Physiol. **22,** 1897.

femoral pulse. Following cessation of respiration, immediate inspection of the heart invariably revealed ventricular fibrillation. Usually the auricle showed no gross movements but in some animals it appeared to be beating normally.

The results with ouabain were essentially the same except that they were somewhat more striking (table 5).

TABLE 5.—*Combined Effect of Intravenous Injection of Ouabain and Ephedrine Hydrochloride* *

Dog		Ouabain		Ephedrine Sulphate		Death	
No.	Weight, Kg.	Mg. per Kg.	Total Mg.	Mg. per Kg.	Total Mg.	Time	Type
1	12.2	0.07	0.86	20	244	Lived	
2	7.7	0.07	0.54	20	154	3½ hours	
3	5.45	0.07	0.382	20	109	Lived	
4	7.27	0.07	0.510	20	145	9-20 hours	
5	6.35	0.07	0.445	25	158	9-20 hours	
6	5.0	0.07	0.35	25	125	9-20 hours	
7	5.0	0.07	0.35	30	150	2 hours	
8	8.2	0.07	0.572	30	246	3 min.	Ventricular fibrillation

* The ephedrine hydrochloride was injected half an hour after the ouabain. Two of the eight dogs used lived.

Approximately half of the median lethal dose of ouabain was given in every case (0.07 mg. per kilogram) and this was followed in half an hour by varying doses of ephedrine.

The results from giving ephedrine hydrochloride first are essentially the same. The details are contained in tables 6 and 7.

COMMENT

According to Chen,[8] the lethal dose of ephedrine for the anesthetized dog is from 70 to 75 mg. per kilogram. According to our figures the median lethal dose is about 40 mg. per kilogram in the unanesthetized dog and when assayed by a single intravenous injection. We attribute the variance to the difference in experimental conditions.

We also attribute our low assay figure for Digilutea (0.42 cc. per kilogram) as compared with 0.65 cc. per kilogram obtained by another method to different experimental conditions. When another method of

TABLE 6.—*Assay of Intravenous Injection of Ephedrine Hydrochloride and Digilutea* *

Dog		Ephedrine Sulphate		Digilutea		
No.	Weight, Kg.	Mg. per Kg.	Total Mg.	Cc. per Kg.	Total Cc.	Type of Death
1	6.35	20	127	0.3	1.91	Lived
2	10.0	20	200	0.3	3.0	2½ hours
3	10.0	20	200	0.3	3.0	9-20 hours
4	5.45	20	109	0.3	1.64	Lived
5	9.1	20	182	0.3	2.72	Lived
6	6.35	25	159	0.3	1.91	7 hours
7	4.55	25	114	0.3	1.36	9-20 hours
8	8.65	25	216	0.3	2.6	6 hours
9	7.75	30	232	0.3	2.32	Lived
10	6.35	30	191	0.3	1.91	1 hour
11	8.2	30	246	0.3	2.46	1 hour
12	6.85	30	205	0.3	2.05	9-20 hours
13	10.0	30	300	0.3	3.0	1 hr. 40 min.

* This table is the same as table 4, except that the Digilutea was injected half an hour after the ephedrine hydrochloride; subtoxic doses were used in each case.

standardization for the same preparation was used, an average lethal dose of 0.69 cc. was found.

To verify this contention further and in order that our figures might not be misconstrued, we also used another well known digitalis preparation (digitol) and obtained essentially the same results.

This is illustrative of the great variation of results obtained in biologic assay when it is done by different investigators working under different experimental conditions. We were also struck by the marked variation in individual susceptibility of different dogs. For example, some dogs died with 30 per cent below the dose in question and some lived that had received 30 per cent above the median lethal dose. These illustrations are only a few of the many cited by Burn[9] as instances in which error in interpretation might occur.

It has been our purpose in this experimental work to demonstrate on animals what could not safely be demonstrated clinically in a graphic way: that a synergism with dangerous potentialities exists between these two drugs. We feel that the results are striking enough to be far beyond the limits of experimental error. These drugs produced a fatal effect when the two were used together. Our observed median lethal dose is considerably below the established lethal dose as ordinarily accepted. Digitalis, when used to the point of obtaining physiologic results, is used in doses of from 30 to 50 per cent of the estimated lethal dose, and occasionally it reaches larger proportions. Many patients show an idiosyncrasy to digitalis, which would further increase the possibilities of danger. The dosage of ephedrine that gives a physiologic result is a much smaller proportion of the

TABLE 7.—*Effect of Intravenous Injection of Ephedrine Hydrochloride and Ouabain in Combination* *

Dog		Ephedrine Sulphate		Ouabain		
No.	Weight, Kg.	Mg. per Kg.	Total Mg.	Mg. per Kg.	Total Mg.	Time of Death
1	5.9	20	118	0.07	0.415	Lived
2	7.27	20	146	0.07	0.51	25 minutes
3	6.35	20	127	0.07	0.445	8-18 hours
4	5.92	20	118	0.07	0.415	8-18 hours
5	5.45	25	136	0.07	0.382	Lived
6	5.0	25	125	0.07	0.350	2 hours
7	5.9	30	177	0.07	0.414	17 minutes
8	7.75	30	232	0.07	0.542	5 hours

* The reverse procedure of table 5 is illustrated here; the ephedrine hydrochloride was given intravenously half an hour before the ouabain injection in each case.

estimated lethal dose. With ephedrine we experience more extreme idiosyncrasies, and untoward results are experienced occasionally with the smallest of the clinical doses as sold on the market.

We have used the term "synergism" in a general way. Any detailed attempt at explanation of the combined effect of the two drugs we will defer until further work is done to allow us to arrive at a more accurate analysis.

It is possible that the combined effect of digitalis and ephedrine or ouabain and ephedrine in sublethal doses of each may be merely a summation effect of two cardiac poisons acting on the irritability or conductivity of cardiac tissue. We realize that ephedrine in the doses given may produce some of the untoward effects observed by a secondary paralysis of the myoneural junction and the smooth musculature of the blood vessel itself,[10] thus increasing the tendency toward a sudden fall in arterial blood pressure.

In either case, when death occurs within a few moments following injection, the sudden cerebral anemia consequent on the ventricular fibrillation may account for the manner of death; i. e., in a position of decerebrate rigidity. Luckhardt and Johnson[11] illustrated the same phenomena by suddenly raising the intrapulmonic pressure in unanesthetized dogs. This caused a sudden and precipitous fall in arterial pressure with profound

8. Chen, K. K.: J. Pharmacol. & Exper. Therap. **27**: 61 (Feb.) 1926.

9. Burn, J. H.: Physiol. Rev. **10**: 146 (Jan.) 1930.

10. Koppanyi and Luckhardt: Personal communication to the authors.

11. Luckhardt, A. B., and Johnson, C. A.: Am. J. Physiol. **84**: 453 (March) 1928.

cerebral anemia. Asphyxial stimulation of the higher centers induces a state not unlike decerebrate rigidity.

SUMMARY AND CONCLUSIONS

Experiments have been performed on unanesthetized dogs to determine whether the combined effect of digitalis bodies with ephedrine has any untoward effects. On the basis of the results obtained and from certain clinical observations, we conclude that undesirable or even dangerous effects are liable to occur. When digitalis is being used in the treatment of cardiac conditions, ephedrine should not be used, or else should be used with extreme caution.

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THE PATHOLOGY OF SICKLE-CELL ANEMIA

REPORT OF A CASE WITH DEATH DURING AN "ABDOMINAL CRISIS" *

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The cause of the peculiar disease known as sickle-cell anemia is unknown. Clinical reports have been given by a number of authors (Herrick,[1] Huck,[2] Graham,[3] Mulherin and Houseal,[4] Sydenstricker,[5] Anderson,[6] Archibald,[7] Browne,[8] Cooley and Lee,[9] Dreyfoos,[10] Hamilton,[11] Alden,[12] Josephs,[13] Steinfield and Klauder,[14] Milliken,[15] Smith,[16] Wollstein and Kreidel,[17] Dolgopol and Stitt,[18] Fradkin,[19] Scriver and Waugh[20]). The disease is limited almost exclusively to the Negro race and is familial and hereditary. There is a possibility that it may rarely occur in the Caucasian race (Castana,[21] Stewart,[22] Lawrence[23]). It is estimated that about 7 per cent of Negroes have the sickle-cell trait; i.e., after anaerobic incubation the "sickling" of the erythrocytes occurs (Miyamoto and Korb,[24] Graham,[3] Cooley and Lee,[9] Brandau[25]). Relatively few of these persons develop the active phase, when the "sickling" takes place in the circulating blood and severe anemia results. Those who develop the active phase usually die before the age of 30 years. The most logical conception of the disease at present is that there is an inherited disturbance of hematopoiesis in which the red blood cells are affected in such a way that they adsorb an unknown substance common to all blood plasma which normal cells will not (Josephs[13]). This substance remains attached to the surface of the cells, probably altering surface tension. It can be washed off in salt solution, after which the cells assume normal shape; when placed again in blood plasma, whether of a normal individual or of one possessing the sickle-cell trait, the abnormal forms reappear to the same extent as originally. The anemia is probably due to hemolysis and phagocytosis of the erythrocytes.

Studies of the pathologic anatomy have been few. The spleen has been removed in five cases (Hahn and Gillespie,[26] Hahn,[27] Stewart,[22] Bell, Kotte, Mitchell, Cooley and Lee[28]). Two patients became symptomatically well but the sickle-cell trait persisted. In another case there was temporary improvement. All the patients were children, aged from 18 months to 6 years. In three cases the spleen was reported to be quite large, four times normal size in one, three times normal adult size in another and 144 Gm. in the third (a child aged 2½ years). In a fourth case the spleen had been noted to be enlarged at the age of 2½ years, after which it became progressively smaller and on removal two years later weighed 46 Gm. In three cases (Hahn and Gillespie,[26] Hahn,[27] Stewart[22]) microscopic studies were made. Two of these spleens were large. There was no increase in connective tissue in them, the pulp was markedly congested, and the malpighian bodies were small. Granules of hemosiderin were numerous. All the blood cells were elongated and filiform. In the other case the spleen was small. There was intensive congestion of both pulp and sinuses, the malpighian bodies were much diminished in size and there was extreme calcification of the blood vessels. Large amounts of hemosiderin were present in scarred areas.

Postmortem records in the literature were available in about eighty-one cases. (Sydenstricker,[5] Hein, McCalla and Thorne,[29] Jaffé,[30] Graham,[3] Wollstein and Kreidel,[17] Rich,[31] Bennett.[32]) Of this number, however, sixty-two were cases that Rich had gathered from 5,000 consecutive autopsies, none of which had been recognized as sickle-cell anemia either clinically or in the original postmortem study; also a number of the other cases were instances of autopsies of individuals who had the disease in the latent form only. The accurately reported case of Bennett was not recognized as one of sickle-cell anemia until after the publication of the first report. In those cases in which the sickle-cell trait was latent the spleen was usually enlarged or at least was not atrophic. There was some change, however, in the spleen. It was usually overfilled with blood, contained a large

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1. Herrick, J. B.: Peculiar Elongated and Sickle-Shaped Red Blood Corpuscles in a Case of Severe Anemia, Arch. Int. Med. **6**: 517 (Nov.) 1910.
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amount of pigment both iron-free and iron-containing, the trabeculae were prominent, and the malpighian bodies were small. The pathologic changes present in all the patients who died in the active phase are so similar and so constant that it may be said that sickle-cell anemia is a definite entity from the standpoint of pathologic anatomy. It was apparently because of the distinctive appearance of the spleen that Rich was enabled to pick out sixty-two cases from 5,000 autopsies. The diagnosis of all these cases was verified by the typical shape of the red blood cells in the sections.

Individuals with sickle-cell anemia may die as a direct result of the anemia or of some intercurrent infection. The case we are reporting is unique in that death occurred during an "abdominal crisis," the exact nature of which we are unable to affirm after a thorough necropsy study. The pathologic changes found in our case are so similar to those reported by other authors that this report serves to verify the existence of a distinctive pathologic picture in this disease. Without describing the observations of previous authors, except to say that the spleen was always extremely atrophic and the bone marrow hyperplastic, we shall describe our case.

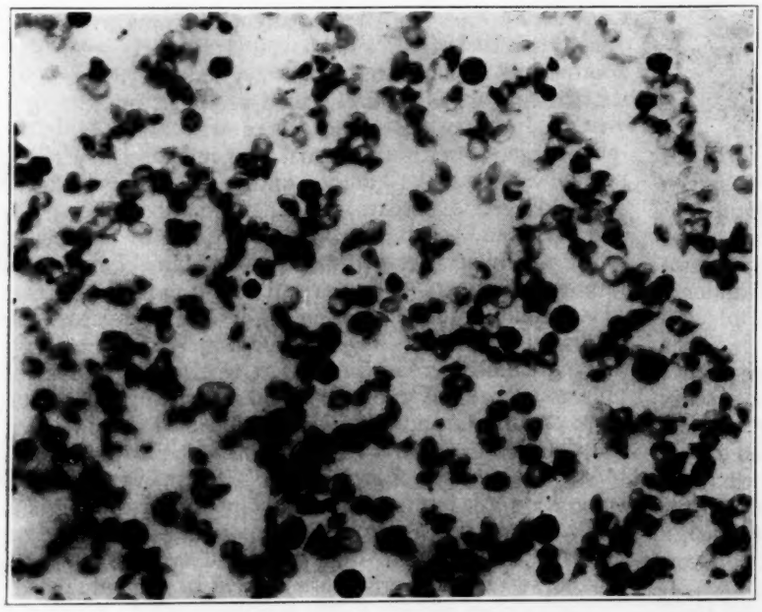

Fig. 1.—Fresh blood smear in case of sickle-cell anemia showing the shapes assumed by the erythrocytes when sickling occurs in the circulating blood. Reduced from a photomicrograph with a magnification of 760 diameters.

REPORT OF CASE

A Negro woman, aged 25, entered Georgetown University Hospital last on Nov. 18, 1929. Eight days before, while doing housework, severe pain in both legs developed which forced her to bed. The pain continued unremittingly. The patient knew that she was about six months pregnant and attributed her present trouble to pregnancy. It was discovered, however, that since early childhood she had had attacks of severe pain in the legs lasting several days, occurring about once or twice a year and similar to but not as severe as the present attack. At frequent intervals, and especially in wet weather, she had complained of soreness in the legs. At the age of 14 years she had been operated on in this hospital for an "osteomyelitis" of the distal third of the left tibia after nine months of severe pain with swelling. She left the hospital quite well seven weeks later. She had had measles, mumps, whooping cough and influenza. The tonsils had been removed in 1923. Two years before the last admission she had entered the hospital bleeding following a miscarriage at six months. At this time she was very ill, and had a septic temperature for seven weeks. Her hemoglobin went as low as 12 per cent, with 950,000 erythrocytes per cubic millimeter. There was marked achromia, poikilocytosis and anisocytosis (probably active sickling that was not recognized), and many nucleated erythrocytes were seen. Blood transfusions were given. She was still very anemic when she left the hospital.

Following this illness she had never been strong and was always dyspneic on exertion. On the last admission she was fairly well nourished, anemic, and apparently in great pain. The temperature was 101 F. and the pulse 120 per minute. The blood pressure was 115 systolic and 65 diastolic. The heart was slightly enlarged to the left, the apex beat was diffuse and a soft systolic murmur was heard at the apex. The abdomen showed evidence of a six months' pregnancy with audible fetal heart sounds. The spleen and the liver were not palpable. There was no adenopathy. The lower extremities were normal except for some enlargement and hardness of the veins running down the inner sides of the lower part of both legs. These were tender, but the muscles and bones were not. Blood examination showed 44 per cent hemoglobin (Dare method), 2,570,000 erythrocytes per cubic millimeter, and 14,800 leukocytes per cubic millimeter. Active sickling was seen (fig. 1) and the diagnosis was readily made (fig. 2).

Urinalysis showed an acid urine, with specific gravity 1.018, a large amount of albumin, many hyaline casts and a great deal of pus. Wassermann and Kahn tests of the blood were negative. The phenolsulphonphthalein test of renal function gave 15 per cent return of dye in the first hour and 20 per cent in the second. The electrocardiogram showed only sinus tachycardia. An alcoholic test meal revealed the absence of free hydrochloric acid. Blood nonprotein nitrogen was 32 mg. per hundred cubic centimeters of blood. A van den Bergh test was indirect with 4 mg. per hundred cubic centimeters of blood. A blood culture was sterile.

The patient was in the hospital six and one-half weeks until her death. During this time the pains in the legs were practically continuous and excruciating, requiring frequent injections of pantopium hydrochloricum daily with only partial relief. The temperature after two days went to normal and remained so for five days, after which it rose irregularly at some time daily, never going over 101 F. The pulse rate varied continuously between 100 and 140 beats per minute. Both temperature and pulse rate were highest during the third and fourth weeks. Valentine's liver extract, 1 ounce (30 cc.) three times a day, was given for over two weeks. During this time the reticulocyte count rose from 2.8 per cent to 9.0 per cent, but the hemoglobin and erythrocyte count did not change appreciably. A few days later the reticulocyte count was down to 0.6 per cent. Iron and ammonium citrate, one-half drachm (2 Gm.), three times a day, was given from then on, without effect on the blood picture. After three and one-half weeks in the hospital the patient miscarried spontaneously without untoward incidents. Eighteen hours before death, which occurred three weeks after the miscarriage, the patient suddenly vomited and began to complain of severe pain in the right side of the abdomen anteriorly and mainly in the region of the liver. The abdomen was soft, not tender, and slightly distended with gas; there was a resistance in the upper half suggestive of enlargement of the liver, which had not previously been noted. The temperature was 99 F. and the pulse rate was 110 per minute. The leukocytes numbered 15,000 per cubic millimeter of blood with 92 per cent polymorphonuclears. The pain continued, with some relief from pantopium hydrochloricum. The pulse rate and temperature steadily fell, and the patient died with a clear sensorium.

An attempt was made early to learn something about the patient's relatives. The father was living and well, and the mother had died of carcinoma of the stomach. Three brothers and three sisters were living and well. No one had had any symptoms suggestive of sickle-cell anemia. Unfor-

tunately, none of the relatives could be persuaded to come from the country to have their blood examined.

Necropsy Report.—Death occurred at 9:45 a. m., Jan. 1, 1930. The postmortem examination was performed, on the unembalmed body, the same day at 11:30 a. m., by Dr. Yater. The body was fairly well developed and was still warm and flaccid. The body weight was about 100 pounds (45 Kg.); the body length was about 5 feet 2 inches (157.5 cm.). The pupils were equal and were about 4 mm. in diameter. There was edema, grade 2, over the tibias. There was no cyanosis, jaundice or emaciation. The abdomen was somewhat distended and resistant.

A small amount of clear straw-colored fluid escaped when the abdominal cavity was opened. The liver was seen to fill the whole upper half of the abdomen, reaching below the costal margin in the right midclavicular line 14.5 cm., in the left midclavicular line 12 cm. and in the median line 18.5 cm. below the tip of the xiphoid process. The great omentum contained very little fat; it hung free over the intestine on the right side, but was adherent on the left side in the lower quadrant to the abdominal wall and to the brim of the pelvis. The appendix was retrocecal, 10 cm. long and coiled on itself. Its lumen was patent throughout and contained soft fecal matter.

On opening the pleural cavity dense adhesions were found throughout both sides of the chest, completely obliterating the pleural cavity. The pericardial sac measured 15.5 cm. in its transverse diameter and contained about 125 cc. of clear straw-colored fluid. The pulmonary artery contained only a small postmortem clot.

The heart weighed 379 Gm. There was one soldier's patch on the anterior surface of the right ventricle. All cavities were distended with blood. The right ventricle was dilated grade 3, the left grade 2. The tricuspid orifice admitted four fingers. The mitral orifice admitted three fingers. The muscle was reddish brown and fairly firm. The endocardium and valves appeared normal. The coronary arteries were soft and did not contain clots. The root of the aorta showed practically no atheromatosis.

The lungs were emphysematous, grade 2, in both upper lobes. They were light gray and of a normal consistency except in the left lower lobe, where there was an area of resistance about the size of a walnut. Cut section was light red and normal except in the area mentioned in the left lower lobe, which was apparently a bronchiectatic condition.

The spleen had a few capsular adhesions; it was very small and firm, weighing 35 Gm. Its capsule was smooth. The cut section was very firm, did not scrape at all and was dark purple with thickly placed white spots. There was a small yellow infarct at one pole.

The liver weighed 2,090 Gm. Its capsule was smooth and its consistency a little softer than normal. The color was reddish brown with distinct yellow mottling throughout. The cut section was similar. The large veins were entirely empty, but dark clots filled many of the blood vessels and were practically extruded when the cut was made. It was not possible to say positively whether these thrombi were in the arteries or the veins, but it is certain that the extrahepatic portions of the right and left hepatic arteries contained thrombi nearly to their cut ends.

The gallbladder was normal in size and was filled with black inspissated bile. The common bile duct was patent. The foramen of Winslow was open. There were large, soft, brown lymph nodes along the portal vein, which was collapsed. The stomach and jejunum contained black liquid or semisolid material and the colon contained lumps of dark fecal matter. The mucosa of the gastro-intestinal tract was apparently normal, but the solitary lymph follicles were prominent.

The kidneys each weighed 183 Gm. They were in most respects identical. The capsules stripped with some difficulty. The surface was brown and roughened by deep indentures over all. In the left kidney there was a cortical cyst measuring about 1.2 by 1.5 cm. and entirely in the substance of the cortex. The left kidney contained an old yellow infarct, 2 by 1.5 cm. and what appeared to be a recent anemic infarct about the same size. The right kidney had one old yellow infarct. The cut section was brown and the glomeruli were very prominent. The cortex measured 1.3 cm. and the medulla 1.7 cm. The renal pelves appeared normal. The bladder and ureters appeared normal. The suprarenals were apparently normal.

The uterus was about normal in size and the placental site was still visible in the fundus. The tubes seemed to be open, and the ovaries appeared normal.

The thyroid gland appeared normal in size, color and consistency. The thymus was completely atrophic. The esophagus was apparently normal. The aorta was smooth and showed practically no atheromatosis. There were no calcified or enlarged lymph nodes at the hilus of either lung. The bone marrow of the ribs, fourth lumbar vertebra and right tibia was bright red.

The anatomic diagnosis was: 1. Sickle-cell anemia (hyperplastic bone marrow). 2. Acute arterial thrombosis of the liver? 3. Atrophy of the spleen (35 Gm.). 4. Old infarcts of the spleen and kidneys. 5. Hypertrophy and dilatation of the heart. 6. Extensive bilateral pleural adhesions. 7. Bronchiectasis, left lung.

Fig. 2.—Extreme sickling of the erythrocytes after eighteen hours' incubation Reduced from a photomicrograph with a magnification of 760 diameters.

Microscopic examination did not show remarkable changes in any of the organs except the liver, spleen, kidneys and lymph nodes. The blood everywhere showed sickling.

The liver showed surprisingly little change from the normal, in view of the assumption at the autopsy that there was an arterial thrombosis of the organ. The thrombi in the substance of the liver were in portal venous radicles, but there was no evidence of lamination or organization. The larger arteries in the portal spaces were empty, but some of the smaller arteries were filled with blood. The blood in all these vessels contained a large number of granules of hemosiderin. The cords of liver cells stood out prominently. They were possibly narrower than normal and the sinuses larger than normal. The sinuses contained the typical sickle cells, but the shapes of the erythrocytes were not as bizarre as in the spleen. The sinuses contained more red blood cells nearer the portal radicles. The liver cells were loaded with large granules of hemosiderin, most heavily so about the portal radicles. The hemosiderin was more abundant in the liver than in the spleen. The nuclei of the liver cells did not appear to

be abnormal. The protoplasm was granular; it stained well. Here and there throughout the sections were patches where the liver cells had undergone almost complete fat replacement, but the nuclei were well preserved. These areas had no determinable position with reference to the portal spaces.

The spleen was greatly altered. The capsule was somewhat thickened. The trabeculae were very much more prominent than normally, perhaps largely because of the atrophy and disappearance of the pulp. There was moderately dense calcium impregnation of many of the trabeculae (fig. 3). The malpighian corpuscles had disappeared or at least were not recognizable. The splenic pulp was almost entirely absent. The arterioles and capillaries were much congested, and the sinuses contained most bizarre forms of erythrocytes (fig. 4). Many of these were extremely elongated, appearing like splinters perhaps five times the length of the diameter of a normal erythrocyte. There were numerous masses of yellowish, refractive, homogeneous material, non-iron-containing, surrounded by trabecular tissue containing heavy deposits of calcium. This material we interpreted as agglutinated red blood cells.

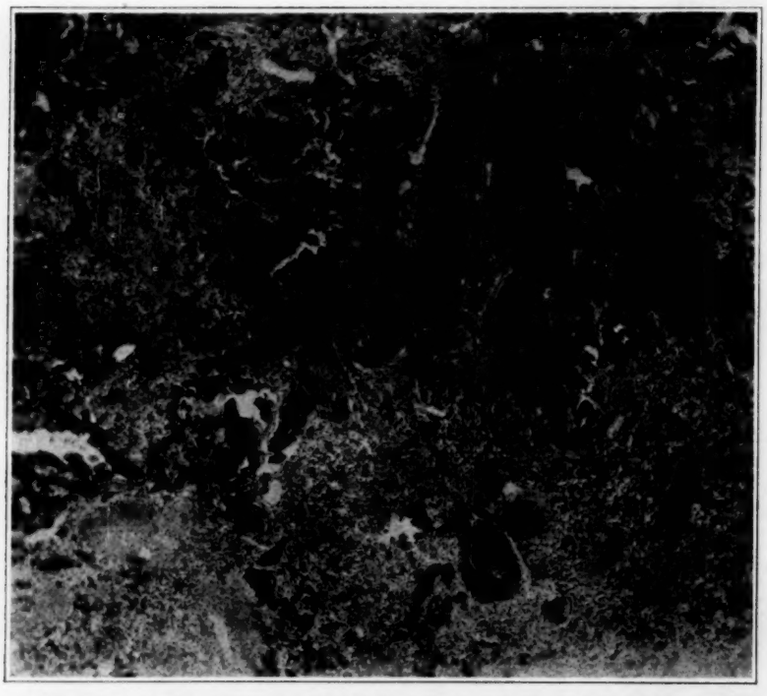

Fig. 3.—Section of spleen in sickle-cell anemia. The black areas are calcium incrustations in the trabeculae. Reduced from a photomicrograph with a magnification of 85 diameters.

Throughout the sections were clumps of very small hemosiderin granules, not appearing to be in any particular tissue. Phagocytes containing hemosiderin were not seen.

The kidneys showed evidence of a healed pyelonephritis producing depressions. Outside of these areas and the small infarcts there was no evidence of inflammation or increase of connective tissue. The tubules were universally dilated. They did not appear to be degenerated, unless the disappearance of some of the nuclei is to be interpreted as evidence of degeneration. In some of the tubules were masses of calcium. The glomeruli appeared normal. Throughout the sections were scattered granules of hemosiderin.

The somewhat enlarged lymph nodes along the portal vein did not appear to be abnormal except for the presence of granules of hemosiderin, which were most abundant in phagocytes.

The bone marrow smears did not turn out well. We were unable to stain them by any method by which they were of value for study.

COMMENT

All cases of sickle-cell anemia are interesting because of the scant knowledge of the cause and clinical course of the disease. In this case death occurred during a so-called abdominal crisis, and it was hoped that the cause of these events might be determined. Crises of abdominal pain are not uncommon in this disease and they have usually been attributed to an infarction occurring in some abdominal viscus. In this case it remains an impossibility to confirm the truth of this assumption if we consider that this patient was suffering from the usual "abdominal crisis." Here, satisfactory cause could not be found either for the pain or for the manner of death. At the necropsy it was thought that the condition was one of arterial thrombosis of the liver. This is possible, but the microscopic picture makes us very cautious to emphasize this point. There was a definite thrombosis of both main branches of the hepatic artery, but this may have occurred in the agonal period. The thrombi were not undergoing organization nor did they have the characteristics of emboli.

If the thrombosis of the hepatic arteries had been complete and sudden in onset at the beginning of the pain it must be assumed that the portal circulation in man is capable of giving sufficient oxidation to maintain the life of the liver cells for several hours, since in this case there was no evidence of acute necrosis microscopically. Seligman[33] has recently reported a case of thrombosis of the hepatic artery, which he says is a pathologic curiosity and has been reported only once before, by Lancereaux.[34] Seligman's patient was a man, aged 43, who had thrombo-angiitis obliterans and who for a year prior to death had attacks of angina pectoris. Examination revealed hypertension, cardiac hypertrophy, enlargement of the liver and edema of the legs, both of which had been partially amputated. The day before the patient died he suddenly became cyanotic and dyspneic and complained of cardiac pain and abdominal distention. The blood pressure rose considerably. The patient died apparently of circulatory failure. The liver weighed 1,750 Gm. and the entire hepatic artery was thrombosed by a laminated, partially organized (?), firmly adherent clot which could be traced for a distance of several centimeters into the depths of the right and the left lobes. The only other thrombus that could be found was an occluding thrombus in the left iliac artery.

Microscopic examination of the liver showed marked passive congestion with slight degeneration of the center of the lobules and only moderate fatty changes in the liver cells. The clot in the main hepatic artery and in the left branch was of the bland laminated variety, but that in the right branch was an organized thrombus. In this case there was no pain in the liver region; the microscopic study of the liver showed very little degeneration, as in our case.

Seligman reports also another case from Pick's clinic in Berlin in which there was a hemorrhagic infarct of the liver 5 inches in diameter due to a laminated dark-brown adherent clot in the right and left branches of the hepatic artery. The case given by Lancereaux was not described in detail. Seligman reviews the reports of the

33. Seligman, Bernard: Am. J. M. Sc. **179**: 609 (May) 1930.
34. Lancereaux, E.: Traité des maladies du foie et du pancréas, Paris, 1899.

experimental work that has been done on the hepatic artery and the records of surgical ligation in man. In animals ligation of the hepatic artery distal to the gastric artery usually results in rapid total necrosis of the liver. In man, however, several instances of ligation of the hepatic artery for aneurysms of that vessel have been reported with recovery, and in three cases the right or left branch was ligated with recovery, in spite of the complete vascular separation of the two lobes of the liver as shown by McIndoe and Counseller.[35] Other surgeons, however, have done the same operation and obtained necrosis of the liver, of one lobe only if only one branch was ligated. It appears, therefore, that in man occlusion of the hepatic artery or one of its main branches may be at times compensated for, probably by the portal circulation. In our case it may be that necrosis would have developed later had not our patient, who was already in a much weakened condition, died of shock.

Why thrombosis should have occurred in our case we cannot say. There is nothing to indicate that the blood in sickle-cell anemia has any altered clotting properties. It is possible that an embolus may have been thrown off from the heart, perhaps from a left auricular thrombus, and lodged at the bifurcation of the hepatic artery to be followed by distal propagation of the thrombus. When the hepatic artery was unsuspectingly cut during removal of the liver, the embolus may have fallen out and been lost. After the liver had been removed and its condition observed, a search was made for such a thrombus, both in the proximal end of the hepatic artery and loose in the abdominal cavity. A thrombus answering the necessary description could not be found. There is also nothing in our case to lead us to suspect the probability of cardiac weakness such as would allow the formation of an auricular or ventricular thrombus. The presence of infarcts in the spleen and kidneys adds strength, however, to the possibility of embolism.

The principal clinical feature of this case was the severe pain in the legs. This is a very common symptom. Its cause is unknown, and nothing was found in this patient to elucidate it.

Liver extract has been tried before in cases of sickle-cell anemia without improvement. A rise in the reticulocyte count up to 9 per cent within the usual time occurred in this case, but there was no corresponding elevation of the blood count. Apparently destruction of the blood kept pace with the increased regeneration of the blood that undoubtedly occurred. The administration of iron was of no value; in fact, since hemolysis is such a prominent feature it seems illogical to use it.

The pathologic changes characteristic of sickle-cell anemia are well illustrated by this case. The changes in the spleen appear to be distinctive. This case corresponds with only slight deviation to all the cases previously reported. The main features are extreme atrophy of the spleen, due to a loss of the pulp, and disappearance of the malpighian corpuscles. A further stage seems to be the deposition of calcium in the trabeculae and in the walls of the blood vessels; the extensive deposition of hemosiderin and other products of hemolyzed or laked red blood corpuscles undoubtedly long precedes the atrophic changes, since this is seen even in the nonatrophic spleens of patients who have the disease in its latent form only. Because of the distinctiveness of the lesions in the spleen we feel that that organ plays more than a minor rôle in this disease. The changes in the spleen cannot be due entirely to the deposition of hemosiderin because the latter is seen just as prominently in primary or pernicious anemia in which the spleen does not undergo such changes. Also, there is much more hemosiderin in the liver, but the reaction is toward hyperplasia rather than atrophy. As mentioned before, splenectomy in two cases was followed by striking improvement or symptomatic cure, although the sickle-cell trait persisted. The spleen at first apparently becomes considerably enlarged and later undergoes shrinkage and atrophy. It seems that at the present time splenectomy should be performed as early as possible in patients who develop the active phase of the disease. At least, sufficient trial has not been given the procedure.

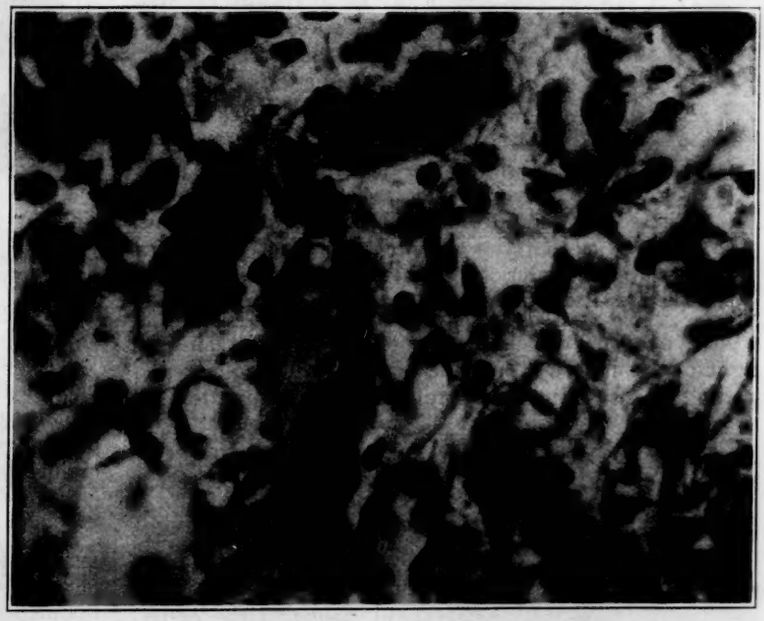

Fig. 4.—Section of splenic sinuses showing bizarre shapes of erythrocytes and granules of hemosiderin. Sickle-cell anemia. Reduced from a photomicrograph with a magnification of 1,660 diameters.

SUMMARY AND CONCLUSIONS

In a case of sickle-cell anemia in which the postmortem observations have been reported, the patient died during an "abdominal crisis" apparently as the result of an arterial thrombosis of the liver; but there is insufficient evidence to substantiate this point. The pathologic changes of sickle-cell anemia are distinctive, particularly as regards the spleen. The spleen becomes markedly atrophic, the pulp diminishes, the malpighian bodies disappear and calcium and iron incrustations are prominent. The liver and kidneys contain iron incrustations, and the kidneys also have calcium deposits in their tubules. The bone marrow is hyperplastic. The spleen plays more than a minor rôle in the disease; more splenectomies should be performed as early as possible in an effort to produce at least a symptomatic cure.

35. McIndoe, A. H., and Counseller, V. S.: The Bilaterality of the Liver, Arch. Surg. **15**: 589-612 (Oct.) 1927.

THE INTERVERTEBRAL DISK*

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The past five years has seen a greater increase in knowledge of the pathologic changes of the spine than that of the half century preceding.

This is due to Professor Schmorl of the Dresden Pathologic Institute, who, in his researches up to now, did not achieve his object of demonstrating the cause of scoliosis but who indicated the anatomy, physiology and pathologic anatomy of that hitherto neglected organ the intervertebral disk.

Schmorl removes the spine at every autopsy and during the past five years has studied more than 5,000 spines. His investigations and observations are those of the pathologist.

A considerable literature has already sprung up in Germany as a result of Schmorl's work, while in this country it has received practically no attention. It was my privilege to spend a few days at Professor Schmorl's institute during the month of October, 1930.

The spine is an organ of many functions, and it is possible that in the future its pathology will be divided into:

(*a*) Diseases and injuries of the supporting column.
(*b*) Diseases and injuries of the pedicles and laminae.
(*c*) Diseases and injuries of the posterior intervertebral joints.
(*d*) Diseases and injuries of the costovertebral joints.
(*e*) Diseases and injuries of the transverse processes.
(*f*) Diseases and injuries of the vertebral spines.

The attempt will be made to demonstrate, in the light of Schmorl's work, the anatomy, physiology and pathology of the intervertebral disk and to call attention to clinical deductions drawn therefrom in the recent literature as well as from clinical experience. This seems of importance to the orthopedic surgeon, the compensation adjuster and the roentgenologist.

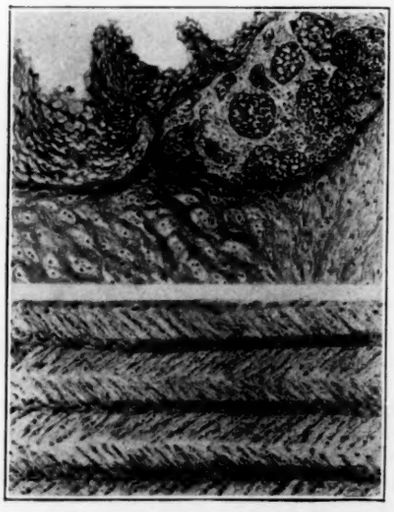

Fig. 1.—Upper layer, nucleus pulposus; chorda cells, some vacuolated; connective tissue cells; ground substance; more or less degeneration. Lower layer, soft lamellae; definite structure of fibrocartilage. (From Fick.)

There are twenty-three intervertebral disks. Together they make up one fourteenth of the height of the body. (A 6 foot man would lose 5 inches of his height without his disks.) The disks form about one fourth of the movable part of the spine. There is not possible a single motion of the spine without their aid. It seems curious that until recently the disk has been practically neglected by the pathologists, the clinician and the roentgenologist.

The disks are intimately attached to the compact bony rim of the vertebral body and loosely to its sievelike surface. They contain in the adult neither blood vessels nor nerves. The disk gets thinner as age advances, which is the chief cause of loss of body height. It is composed of three distinct parts: (1) The nucleus pulposus; (2) the annulus fibrosus, and (3) the cartilage plate ("knorpel-platte," Schmorl).

The microscopic anatomy of the disk has been excellently described by Fick. It is composed of an intricately planned mass of fibrocartilage surrounding the nucleus pulposus with few, if any, elastic fibers.

Fig. 2.—Lateral view of spine in a girl, aged 5½ years, showing entrance of arteries into anterior portion of vertebral body. (Harrenstein, R. J.: Ztschr. f. orthop. Chir. **49**, 1928.)

Fig. 3.—Development of epiphysis in a child, aged 7 years. (Schmorl, G.: Zentralbl. f. Chir. **55**, 1928.)

The nucleus pulposus is normally situated slightly behind the median line. It is chiefly composed of remains of the notochord, a semifluid ground substance, débris, and cartilage cells. It is comparatively large in children and recedes in size as age advances. Normally it never disappears (fig. 1).

The annulus fibrosus (annalus lamellosus, Fick) forms the major portion of the intervertebral disk. It is composed of fibrocartilage arranged in a definitely planned and rather complicated scheme of lamellation which Fick has fully described. It is firmly attached to the cancellous rim of the vertebral body by an arrangement similar to Sharpey's fibers.

The cartilage plate ("knorpel-platte," Schmorl) is in contact with the surface of the vertebral body. It is thicker and more resistant in the child. It is rather loosely attached to the underlying sievelike surface of the vertebral body and can be readily detached.

At this time a few anatomic considerations emphasized by Schmorl and of practical importance to the roentgenologist may be interjected.

(*a*) In the child the roentgenogram may show a notched appearance of the anterior surface of the vertebral body. This represents the entrance of an artery (fig. 2).

(*b*) In the child, as well as in the adult, similar notching may be seen in the posterior portion of the vertebral body. This represents the vein (vena basivertebralis).

(*c*) In a 7 year old child ossification often occurs, so as to leave a notched appearance on the roentgenogram of the upper and lower anterior rim (fig. 3).

(*d*) Later, up to 16 years, a bony center appears and develops in this notch, which is often seen on the roent-

* President's address, read before the Minnesota Academy of Medicine, Jan. 14, 1931.

* Owing to lack of space, this article is abbreviated here by the omission of a bibliography. The complete article appears in the author's reprints.

genogram. This represents the ossification process of the entire rim of the vertebral body, both above and below. Schmorl states definitely that this does not constitute an epiphysis (fig. 4).

(*e*) There is sometimes a definite ossification center for the neural arch.

FUNCTION OF THE DISK

All motions of the spine involve and depend on the intervertebral disks. They comprise about one fourth of the movable part of the spine. In the cervical region the disks form 40 per cent of the spine; in the dorsal region they form 20 per cent and in the lumbar region 33⅓ per cent. The disk is compressed and stretched during motion.

Furthermore, the disk is under permanent pressure, both internal and external. The internal pressure is due to the nucleus pulposus. The external pressure is due to the superincumbent weight of the overlying parts. The nucleus pulposus activates the spine. It may be compared to a compressed spring or to a water pillow (fig. 5). The golf ball of a few years ago owed its resilience to the fact that it contained in its center a fluid mass under pressure. When the spine is bisected, the nucleus pulposus immediately bulges. When put into cold water it soon swells to four times its size, showing its enormous distensibility. This internal pressure is present in any old cadaver. The internal pressure of the nucleus pulposus has never been measured. The nucleus pulposus is the fulcrum about which the intervertebral motion occurs. The annulus fibrosus is the weight bearing portion of the disk, while the cartilage plate may be called the limiting membrane of the disk above and below. It will be seen, therefore,

Fig. 4.—Development of epiphysis in boy, aged 14 years.

that the intervertebral disk acts as an admirable bolster which receives and absorbs shocks and jars; it is also an organ of movement of the spine. It is far from being a passive organ; it is, in fact, an active one. A compressed spring may be considered an active force.

PATHOLOGY OF THE DISK

The pathology of the disk can be understood when its internal pressure is kept in mind. Injury and disease of the spine affect the disks as well as the other structures concerned. In the light of present knowledge it is believed that the pathology of the disk can be classified as follows: (1) pathologic conditions of the disk itself; (2) those pathologic conditions in which the disk plays the preeminent part, and (3) those conditions in which pathologic conditions of the disk are of secondary nature (although, nevertheless, it may be of considerable clinical and roentgenologic importance).

Pathologic Conditions of the Disk Itself.—1. Congenital Anomalies: These occur rarely. They consist of fetal remains of the notochord attached to the disk and extending into the body of the adjacent vertebra. They do not cause clinical symptoms but ought to be recognizable on the roentgenogram when present.

Fig. 5.—The nucleus pulposus is compared to a spring. This is not quite exact, as the lines of force of the internal pressure radiate in all directions. (From Calvé, J., and Galland, M.: J. Bone & Joint Surg. **12**: 555 [July] 1930.)

2. Calcification of the Disk: This is a rare disorder. In the examination of the roentgenograms of 200 adult spines, I was able to find but one case. Several isolated reports are to be found in the literature. Whether the subject has any clinical importance is not known (fig. 6).

Pathologic Conditions of the Spine in Which the Disk Plays the Preeminent Part.—1. Prolapse of the Disk (knorpel-knoetchen, Schmorl) (figs. 7 and 8): Schmorl has shown the relative frequency of occurrence of this interesting condition. In a series of 3,000 autopsies of the spine, he found them present in 38 per cent. The condition is rare in children. The prolapses may be multiple or isolated. The lumbar and cervical spine is more frequently affected than the dorsal.

Prolapse of the disk is due to the combination of the active forces within the disk (internal pressure of the nucleus pulposus) together with a weakening from disease or injury of the cartilage plate or of the underlying spongy bone of the vertebral body.

The causes of weakening of the cartilage plate, the "limiting membrane" of the disk, are usually due to injury; small tears or fractures occur in the cartilage plate. Schmorl states that the cartilage plate in young persons may be overstretched, causing weakening and secondary prolapse. In certain cases there may exist a congenital anlage causing weakening of this cartilage plate.

The other cause for cartilage prolapse is due to weakness of the underlying bone due to atrophy, injury or destructive disease. Any of the foregoing causes combined with excessive weight bearing may be considered as etiologic factors in the production of prolapse of the disk.

In shape and size, these prolapses are very irregular. They may be large or small. Under certain conditions

the disk may displace and occupy practically the entire vertebral body.

As previously stated, this condition of cartilage prolapse may be multiple or isolated. When multiple, it can be assumed that one is dealing with generalized weakness of the underlying bone (constitutional disease). When isolated, one can deduce that one is dealing with a localized condition of injury or disease.

Fig. 6.—Calcification of the disk.

In cases in which the prolapse has existed for some time, there occurs a defense reaction on the part of the spongiosa. It is characterized by the laying down of new bone, which surrounds the prolapsed cartilage of the disk and walls it off. This is often seen roentgenologically.

While the prolapse usually occurs into the adjacent bone, it sometimes may extend into the vertebral canal. In cases of this type the prolapse is usually small and of no clinical significance. Several cases are to be found in the literature describing cartilage tumors extending from the disk into the vertebral canal, which have caused neurologic disorders and have necessitated operation. Such cases are rare.

Fate of the prolapsed cartilage. A prolapse of the disk does not disappear. The condition usually remains stationary and the defense reaction of the spongiosa, previously noted, walls it off. However, it may become vascularized and subsequently ossify. It also may become cystic after degeneration has occurred.

Fig. 7.—Microscopic section of a cartilage prolapse. Note disruption of cartilage plate. Spongiosa thickened around the prolapse. Osteosclerosis. (Schmorl, G.: Fortsche. a. d. Geb. d. Roentgenstrahlen **38**: 265 [Aug.] 1928.)

Clinical observations. It has been found that these cartilage prolapses are more frequent in men, especially those who are of athletic type.

There exists considerable difference of opinion as to the clinical meaning of these cartilaginous prolapses. Schmorl, their discoverer, does not ascribe to them any particular clinical importance whereas Schanz, a prominent orthopedic surgeon of Dresden, is inclined to give considerable weight to them. Probably the truth lies somewhere between.

It seems apparent that a cartilaginous prolapse of the disk must mean lessened strength or force of the nucleus pulposus and therefore lessened resilience. The spring is weakened. For this reason it is not at all impossible to assume that abnormal strains and stresses occur. These strains and abnormal stresses are transmitted to the ligaments connecting the bodies of the vertebra in the region involved. These abnormal stresses and strains may cause pain. It is very possible, therefore, that the so common condition of "painful back" has received another plausible addition to the already long list of possible etiologic factors in this condition.

In looking over the roentgenograms of a series of cases of recurrent back strain, I have found isolated cartilage prolapses in nearly all cases.

The discovery of these cartilaginous prolapses has brought up again the discussion as to what constitutes Kümmell's disease. The probabilities are that in this disease one is dealing with a result of trauma. The etiology is probably injury to the cartilage plate or to the spongy bone of the vertebral body which is not demonstrable on the roentgenogram at the time of injury and that the later clinical and roentgenologic changes (kyphosis, partial destruction of the vertebral body, prolapse of the disk) are due to the combination of injuries to the cartilage plate and bone combined with results of the internal pressure of the disk and secondary prolapse. Some cases have been reported in which the examination was negative at the time of injury which later showed the typical Kümmell changes.

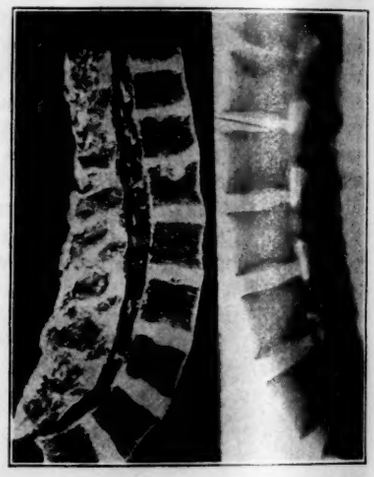

Fig. 8.—Prolapse of cartilage of twelfth dorsal disk. (Schmorl, G.: Fortschr. a. d. Geb. d. Roentgenstrahlen **38**: 265 [Aug.] 1928.)

2. Adolescent Kyphosis: All authorities seem agreed that here one is dealing with a condition due to pathologic changes primarily situated in the disk. Schmorl thinks that in these cases the disks are riddled with multiple remains of the notochord. The cartilage prolapse is multiple, extending over practically the entire spine. This is the only form of spinal curvature with this etiology. The roentgenologic signs in juvenile kyphosis are practically pathognomonic.

3. Poor Posture: It may be stated that I have frequently found these multiple cartilage prolapses in advanced cases of poor posture (class D).

4. Osteoporosis: Owing to osteoporosis of the vertebral body, the bone is weakened. There results ballooning of the disk caused by the springlike action of the nucleus pulposus. There occurs usually the secondary sclerosing of the bone underlying the prolapsed cartilage.

5. Senile Changes: These consist of degeneration of the disk. The disk becomes thinner and occasionally there occurs bony ankylosis between the bodies of the vertebrae due to the disappearance of the disk. The disk is narrowed. Lyon gives the successive changes of the senile degenerative process as fibrillation, softening decay, fatty degeneration, and decalcification. The condition is, of course, very common. It affects all the intervertebral disks in any given case.

6. Chronic Spondylitis: This term should be used only in inflammatory processes of the body and disk. It must be remembered that the articulation between the disk and the vertebral body is not a true joint but is a synchrondrosis. The word "arthritis" of the spine should be reserved to diseases of the posterior intervertebral joints which are true joints. It is curious how seldom the latter joints show disease involvement in chronic spondylitis. Haumann says that without pathologic changes in the disk (injury, prolapse or degeneration) one cannot have spondylitis.

All good works on anatomy show the peculiar difference that exists in the attachments of the anterior and posterior common ligaments of the spine. The anterior common ligament is not attached to the disk, while the posterior common ligament is not attached to the body but is firmly attached to the disk. This probably explains why the bony hypertrophies so commonly seen in spondylitis seldom invade the vertebral canal.

Spondylitis is almost always preceded by changes in the disk, usually of the type of cartilage prolapse. The entire process of spondylitis may be conceived as a defense mechanism on the part of the spine to brace and ankylose itself and in this way make up for the lost resilience of the disk. That is why the same type of bony bridges, spurs and spans are seen in such a variety of pathologic conditions.

These struts and braces which the spine constructs for itself are not put there unless they are needed. They are often necessary in local or in general injury or disease of the disks or vertebral bodies: local, as in a fracture; general, as in general weakening of the disks.

Those Conditions in Which the Pathologic Condition of the Disk is of Secondary Nature.—1. In fractures of the cervical spine the disk is often injured. In fractures of the dorsal spine it is frequently not injured. In fractures of the lumbar spine it is usually injured. It may be said that in many cases the disk is not injured. The bone yields but the disk does not. This is due to the fact that it is firmly attached to the rim of the vertebral body. Many fractures of the spine may therefore be likened to the sprain fractures seen elsewhere. Occasionally the disk seems totally destroyed. Roentgenograms sometimes show bony fractures separated by cartilaginous masses.

If the disk is badly injured, there results a lessened resilience of the nucleus pulposus, and it is in these cases that the secondary changes of spondylitis occur. It is in these cases that one sees the often observed later bony bridges going from the body of one vertebra to another. If the nucleus pulposus is not injured, there is no secondary spondylitis. If there is bony ankylosis between the bodies of the vertebrae, the secondary bony bridge does not occur.

2. The disk in injury without fracture has been referred to under the heading of prolapse of the disk.

3. The anatomy and physiology of the disk in scoliosis, as far as I can ascertain, has not been described up to now.

In this deformity Dr. Steindler of Iowa City achieves apparent correction which is obtained by increasing the secondary curve usually situated in the lumbar region. It is probable that in his successful cases he obtains, by means of exercises and braces, a change in the shape of the disk. Galland has shown that in certain cases the nucleus pulposus shifts. It is probable that in Steindler's cases the apparent correction is obtained by a similar process in the disks.

4. In osteomalacia, there is softening of the bone and consequent ballooning of all the disks.

5. In tuberculosis of the spine the disk frequently disappears early in the disease. This is probably nature's method of obtaining bony fusion. In certain cases, cartilage prolapse occurs.

In cases of marked tuberculous kyphosis in the dorsal region, it is interesting to note the widening of the anterior portions of the disks in the formation of the secondary lordosis in the lumbar spine. Here also one is probably dealing with a traveling forward of the nucleus pulposus if one follows the theory of Galland.

6. In osteomyelitis the disk is rapidly destroyed.

7. Syphilis of the spine is characterized by bone density and cartilage prolapse.

8. Charcot spine is characterized by marked hyperosteoses and the disappearance of the disk.

9. Carcinoma, a destructive bone lesion, often shows cartilage prolapse into the substance of the vertebral body.

CONCLUSIONS

1. The intervertebral disk is not an invulnerable organ. It is often affected in disease and injury.

2. This should be of interest to the clinician and to the roentgenologist.

3. The work of Schmorl, on which this paper is largely based, has given a new point of view on pathologic changes in the spine. He has called attention to the pathologic, clinical and roentgenologic importance of the intervertebral disk.

823 Nicollet Avenue.

Experimental Bone Formation in the Urinary Tract.—Litten and others have described extensive calcification in the kidney, regularly following temporary arrest of the renal circulation. A demonstrable deposition of calcium may be present as early as thirty-six hours after a temporary anemia of one hour. The calcification occurs in and around necrotic tubules chiefly in two zones, one beneath the cortical surface and the other at the base of the pyramids. Wells stated that calcification produced by temporary anemia as well as by certain poisons is probably analogous to calcification of organic material in urine rather than calcification of tissues with lime salts direct from the blood, since the epithelium and tube-cast deposits seem to contain calcium only as phosphate with no demonstrable carbonate. When the necrosis and calcification involve interstitial tissues, carbonate can be demonstrated. An important experiment leading to the formation of bone and bone marrow in the kidney through permanent ligation of the vascular pedicle was reported by Sacerdotti and Frattin in 1901. These observers described bone occurring in three of four rabbits from seventy-four to eighty-five days after ligation. In two cases the ureter was also included in the ligation. In one experiment at autopsy, some of the pelvis epithelium persisted, and bone formed in spite of the ligation of the ureter; in the other, no bone was formed and the pelvic epithelium had completely disappeared.—Huggins, C. B: The Formation of Bone Under the Influence of Epithelium of the Urinary Tract, *Arch. Surg.*, March, 1931.

Clinical Notes, Suggestions, and New Instruments

APPARATUS FOR PREVENTION OF FOOT DROP IN CASES REQUIRING PROLONGED TREATMENT IN EXTENSION *

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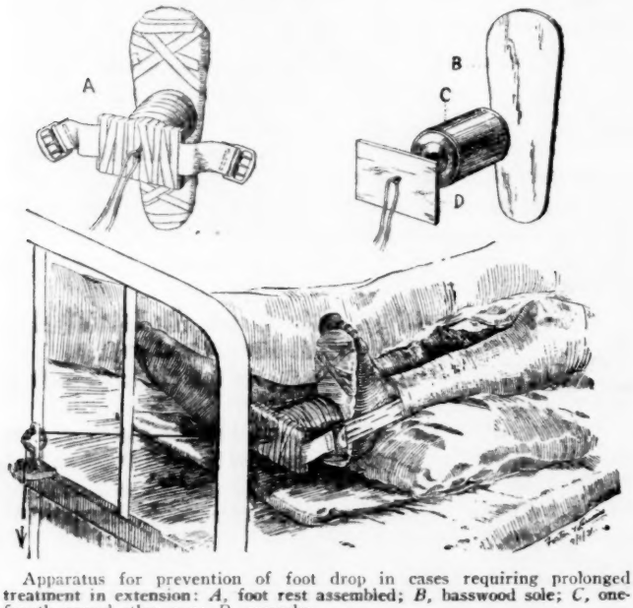
During our hospital training we have been particularly impressed by the totally inadequate methods in vogue for the prevention of foot drop in cases requiring prolonged treatment in extension apparatus.

Our previous attempts at preventing foot drop had usually been by careful policing of the patients and definite exercising of the ankle joint, or by placing some wadding of cotton or other soft material between the spreader and the foot, which was effectual so long as it stayed in place. This usually slipped and was a constant source of worry to the patient, nurse and house officer. The most universally used and most satisfactory method up to this time was found by placing a padded wooden sole on the bottom of the foot, fixing this lightly with adhesive



Apparatus for prevention of foot drop in cases requiring prolonged treatment in extension: *A*, foot rest assembled; *B*, basswood sole; *C*, one-fourth pound ether can; *D*, spreader.

tape, placing strings or tape in the support and then holding the foot in proper position by attaching these to the cradle over the extension apparatus. This degree of pull was counter to the force of the pull on the extremity; the sole invariably slipped and required straightening frequently.

Although we prevented a fair degree of foot drop by dint of much vigilance and loss of time from other duties, we did not believe that the results obtained were commensurate with the effort expended.

During the past year at the Church Home and Infirmary, we have been using the present apparatus with uniformly good results in all house cases together with those granted us by the courtesy of Drs. William S. Baer and George E. Bennett of the visiting orthopedic staff of the hospital.

This method has removed the worry of foot drop from the minds of the visiting staff, the resident staff and the nursing staff, it has shortened the actual time of incapacity of the patient, and it has eliminated the subsequent correction of deformities that might have arisen, not from neglect, but from sheer inability to prevent the deformity.

The principle of the method is to incorporate some type of apparatus within the extension mechanism which will (1) prevent foot drop, (2) keep the ankle fixed in the normal position, (3) allow some little motion at the ankle joint, (4) keep tone in the leg muscles, and (5) not interfere with the primary object of the extension apparatus.

We will describe this piece of original apparatus in the hope that it may be of as much practical value to others as it has been to us. It is made cheaply and easily.

THE APPARATUS

An ordinary wooden spreader with the canvas strap and buckles on each end is used. The traction cord is of heavy single or double fishing line fixed in the center of the spreader and perforating the canvas strap.

The neck of an empty four ounce ether can is pulled or cut out and the beveled edge made flush with the end of the can. This end is placed against the center of the inside of the spreader so that the knot made by the cord or rope is buried in the hole and the two surfaces are flush. Adhesive strips are used as fixing material.

The patient's foot is measured and a sole cut out of a piece of heavy basswood.

The other end of the ether can is attached to the center of this sole and also fixed with adhesive strips and the can covered with the same material to strengthen the apparatus and improve its appearance.

The foot rest is padded with cotton and covered either with gauze bandage or with muslin.

The padded foot rest incorporated into the spreader is placed against the sole of the foot, the extension strips are buckled in place, the foot is now held firmly in its proper position, and the necessary extension on the extremity is carried out without further worry about foot drop.

* From the Church Home and Infirmary of the City of Baltimore.

DERMATITIS VENENATA DUE TO CHRYSANTHEMUM LEAVES

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In looking through the literature, I have been unable to find mention of any cases of dermatitis venenata due to chrysanthemum leaves. I am reporting a case recently treated:

REPORT OF CASE

F. B., aged 63, a greenhouse employee, seen, Oct. 21, 1930, had had a severe, itching skin eruption present for the past ten months. It happened to be getting worse. He never had skin trouble before the present attack. He had been employed in his present position for seven years. He was married and his past medical and family histories were irrelevant.

The patient was of small stature. He was poorly nourished and evidently had lost some weight. He had a large right inguinal hernia; but nothing else abnormal, outside of the dermatologic condition, was discovered.

The skin eruption was generalized but was most marked over the face, neck, arms and buttocks. The eruption consisted of diffuse erythematous, scaling patches. At certain places, such as the face and right forearm, the skin was edematous. On the forehead, besides the scaling, vesiculation and oozing were present. Excoriations were plentiful. The eyelids were swollen and the conjunctivae injected.

The condition resembled an exfoliative dermatitis, such as is seen following acute arsenical poisoning. He used sprays containing lead arsenate and nicotine at his work.

Laboratory studies did not disclose anything of importance.

A diagnosis of exfoliative dermatitis from lead arsenate was made. Sodium thiosulphate was given, both intravenously and by mouth. Bran baths and a soothing liniment were prescribed for the pruritus.

He began to improve. Patches on his right arm, forehead, and back of the neck were persistent. These were treated with fractional doses of x-rays. They responded favorably. He was advised to seek other employment.

December 19, he came to the office with an acute exacerbation as severe as the original attack. He said that he had left a pair of boots in the greenhouse. He went out to get these and merely walked through the place. That night, his skin began to itch and the next day it was broken out. No spray was being used at this time in the greenhouse.

At this time, I decided that he must be sensitive to some plant. He was carefully questioned as to the various plants growing at the greenhouse. He said that they varied at different times but he believed that chrysanthemums had always been present. The acute attack was treated with soothing lotions and ultraviolet rays.

After recovery, patch tests were tried, various leaves being employed. The chrysanthemum leaf produced erythema in twenty-four hours. In forty-eight hours, fine papules were present, which later became vesicles. The vesicles dried and the skin became rough and scaled in this area. The reaction remained for ten days. Patch tests with other leaves were negative.

404 Stambaugh Building.

A CASE OF POISONING BY POTASSIUM CHLORATE *

STEFAN ANSBACHER, PH.D., CHARLESTON, S. C.

Cases of fatal poisoning by potassium chlorate are seldom encountered at present, although a number were reported during the latter part of the nineteenth century. Jacobi [1] reported eleven cases in 1879, and Wegschneider [1] thirty in 1880. Rosenbloom,[2] in 1912, reported the case of a woman who died after ingesting about 50 Gm. The only one that I have been able to find in the more recent literature (1930) is that of Bernstein.[3] In that case of 1910 a mentally diseased army officer, aged 33, ate an entire tube of Pebeco Tooth Paste on an empty stomach, corresponding, in the opinion of the author, to 7.5 Gm. of potassium chlorate. He explained the toxicity of this small dosage on the ground that it was taken while the patient was fasting. In the light of an earlier analysis by Buri,[4] who found 50 per cent of chlorate in Pebeco (corresponding to 40 Gm. per tube), it is probable that the figure given by Bernstein is too low.

I recently had an opportunity of making a chemical analysis in a case of fatal poisoning by an alkali chlorate such as potassium chlorate. The history is as follows: A woman, aged 22, a pharmacy student, apparently took poison the morning of her admission to the hospital. The symptoms were violent vomiting, slight mucous diarrhea, deep cyanosis of the lips, and a bluish cast of the skin. A sample of the blood was thick and brown. In spite of cardiac stimulants, intravenous dextrose and subcutaneous oxygen, the patient died the same evening. The diagnosis was poisoning by some unknown agent, possibly an aniline derivative, and probably self-administered. This diagnosis was of no help to the chemist.

Materials available for examination were blood, contents of the stomach and intestines, and a specimen of urine obtained by catheter before her death. Spectroscopic examination of the blood showed methemoglobin. Since potassium chlorate forms methemoglobin in the body, the chlorate ion was tested for in the urine, alkali chlorates being rapidly eliminated by the kidney. On the addition of a drop of concentrated sulphuric acid to a few drops of urine, the color and odor of chlorine or oxides of chlorine were recognized. Repeated with 5 cc. of urine, heated, an explosion took place of sufficient violence to shatter the test tube, a specific reaction for chlorine dioxide. This observation is interesting, since no one has previously reported such a concentration of chlorate in the urine. In order to make a quantitative estimation, the chlorides were determined by Volhard's method,[5] and the total chlorine by the same method after reduction with ferrous sulphate. The chlorate concentration was equivalent to 2.6 per cent of potassium chlorate in the urine.

It would be a matter of pure speculation to attempt to estimate the amount of the poison taken from these meager data. Several authors give 8 Gm. as the minimum lethal dose of potassium chlorate. The high chlorate content of the urine and the rapid exitus seem to indicate that a much larger quantity, probably more than 30 Gm., was taken.

* From the laboratory of the South Carolina Food Research Commission.

1. Cited by Barthe: Toxicologie chimique, 1918, p. 268.
2. Rosenbloom: Biochem. Bull. **1**: 483, 1912.
3. Bernstein: Samml. v. Vergiftungsfällen **1**, supplement to Arch. f. exper. Path. u. Pharmakol., February, 1930.
4. Buri: München. med. Wchnschr. **22**: 967, 1904.
5. Treadwell and Hall: Analytical Chemistry, ed. 7, 1930, p. 603.

SUBDIAPHRAGMATIC GONORRHEAL ABSCESS

G. D. SCOTT, M.D., SULLIVAN, IND.

Subdiaphragmatic or subphrenic abscess usually results secondary to infection in the upper abdomen, such as rupture of duodenal or gastric ulcer, hepatic abscess, rupture of empyema through the diaphragm, and occasionally ascending infection from appendical abscess.

In looking through the literature I have failed to find a case of subphrenic abscess due to gonorrheal infection, although Curtis [1] has recently described "violin-string or banded adhesions between the liver and the abdominal wall," observed frequently in women with pelvic gonorrheal disease.

REPORT OF CASE

History.—Miss E. R., aged 15, Negress, single, entered the Mary Sherman Hospital, May 28, 1930, at 12:30 a. m. The patient was first seen at her home six hours before. May 24, she had awakened during the night complaining of pain in the upper part of the abdomen. At first this pain was of a cramping character, and she was not nauseated. Menstruation had begun the day before, but she stated that this pain was high in the abdomen and was different from her usual menstrual cramps. The pain continued throughout the night and was more or less continuous during the following day, although she was up and performed her usual housework. The second day she continued to have abdominal pain, which was more or less spasmodic in character, necessitating her being in bed a portion of the time. She had a normal bowel movement and was not nauseated.

During the afternoon of the third day the pain became more severe and she asked for relief.

She had had no other previous illness. Menstruation began at the age of 13 and was always regular but was associated with menstrual cramps at the onset of flow.

Examination.—The patient was sitting up in bed, screaming with severe pain in the upper part of the abdomen and holding her hands over the area of the liver. Respiration was rapid, 35 to 40, and jerky in character. There was an anxious expression on her face. She described the pain as "sharp, like the stabbing of a knife," as increasing with respiration, and as being located over the liver and extending slightly below the right costal margin, radiating to the back and to the left shoulder region. She was now nauseated and had vomited twice. Her temperature was 103.5 and pulse, 120. She seemed to be relieved more by sitting up in bed and holding the abdomen with her hands, and apparently more uncomfortable when lying down with the thighs flexed. The pupils were equal, the conjunctivae not jaundiced; the tongue was coated; the breath was foul; the teeth were in good condition; the tonsils were enlarged, and the neck was normal. The heart and lungs were normal to palpation, percussion and auscultation, although respiratory movement was rapid and jerky. The abdomen was slightly distended with boardlike rigidity and tenderness so marked that examination was very difficult. Tenderness was more pronounced over the upper right quadrant but was not extreme on hammer percussion over the kidney region. The patient was menstruating, and a vaginal examination was not made. An examination of a catheterized specimen of urine showed it to have a specific gravity of 1.020, to be acid, and to contain no albumin, sugar or casts. The leukocyte count was 15,800.

Appendicitis, with high position of the appendix, was considered on account of the age of the patient. However, the pain and tenderness were not as ordinarily described in appendicitis. The patient seemed to get more relief when in the upright position than when lying on her back with the thighs flexed, as is usual in appendicitis. Gastric symptoms, such as nausea and vomiting, were not those ordinarily expected in appendicitis.

On account of the severity of the pain, with boardlike rigidity, perforation of duodenal or gastric ulcer was considered but was ruled out on account of a previous history of ulcer.

On account of rapid, jerky respiration, pneumonia and diaphragmatic pleurisy were considered but were ruled out because

1. Curtis, A. H.: A Cause of Adhesions in the Right Upper Quadrant, J. A. M. A. **94**: 1221 (April 19) 1930.

of the absence of signs and because of the low leukocyte count. A preoperative diagnosis was made of acute cholecystitis owing to the character and location of the pain.

A roentgen examination was not made.

Operation.—Ether anesthesia was given. A right rectus incision was made. The appendix was normal. The uterus, tubes and ovaries were normal to palpation. Free fluid was not found in the pelvis or around the appendix or ascending colon. The stomach was normal. The gallbladder was markedly distended, very tense and could not be emptied by manual pressure. An aspirating needle was introduced into the gallbladder, and black, tarry, thick bile aspirated. It was decided to extend the incision upward to get a better exposure for the purpose of draining the gallbladder, and when the table kidney elevator was raised, a large quantity of thick pus poured down from the dome of the liver. The hand was passed upward, behind and on top of the liver, separating a mass of fresh adhesions, when a large amount of pus escaped into the hand. A diagnosis of subphrenic abscess was now made. Two large strips of iodoform gauze drains were inserted behind and extending over the dome of the liver. One tube was inserted into the gallbladder and held in place by two purse-string catgut sutures, and one tube drain was placed in the culdesac of Douglas. The peritoneum and fascia were closed with number 2 chromic catgut and the skin by skin clips.

Laboratory Report.—The smear made direct from pus obtained from behind and on top of the liver showed intracellular diplococci, gram negative. Cultures made on blood serum and plain nutrient bouillon from pus showed no growth.

Cultures made on blood serum and plain nutrient bouillon from bile obtained by aspiration showed streptococci.

The smear made four days following operation, and also stains made from vaginal smear, showed gram-negative intracellular diplococci.

The patient made an uneventful recovery and was discharged from the hospital, June 21, at which time the wound was healed, except a small opening at the place of drainage insertion in the lower end of the wound.

COMMENT

This case is interesting because of a localized gonorrheal subphrenic abscess, with no free pus or free fluid in the pelvis, and with both tubes normal to palpation. It would seem that the infection was transmitted through the lymphatics, or blood stream, rather than by direct extension.

Sherman Building.

MELANOMA OF AMPULLA OF VATER *

GEORGE W. JONES, M.D., CLOVIS, N. M.

Mrs. M. L. C., aged 56, with five children, seen, Oct. 9, 1930, had been tiring easily and had noticed numerous black lumps in her skin for several months. These lumps had been increasing in size, and she had been losing weight. Her family history was negative for melanoma. Her personal history had no bearing except for cholecystotomy in 1910.

Examination revealed several small black moles grouped together in the region of the insertion of the deltoid of the right arm. Information was obtained that she had bruised this area several weeks previously. No area of reaction or inflammation was found around these moles. Immediately above the outer end of the right clavicle was a tumor the size of a lime which had been present about two months and had grown rapidly. The tumor was fairly firm with some overlying skin discoloration. Other and smaller tumors were noted in the subcutaneous skin of the neck, occipital region, back and abdomen. The liver was not palpable. Bone involvement was not found. A roentgenogram of the chest showed no metastasis to the lungs. One of the tumors of the abdominal wall was removed for section. Grossly, it was of a spongy consistency and brownish black. Dr. J. R. VanAtta of Albuquerque reported the specimen as melanoma.

Prognosis of the case was eventual fatality with a probable period of life from a few months to a few years. However, October 25, the patient became jaundiced, and this increased in intensity until her death, October 31. Her yellow coloration was intense and the stools were devoid of pigment. The urine showed heavy bile reaction.

Autopsy, October 31, revealed the pancreas studded throughout with metastatic melanomas. At the ampulla of Vater was a melanoma the size of and with the appearance of a ripe olive, which completely obstructed the opening of the common bile duct. A probe placed in the common bile duct from above and directed into the duodenum pushed directly through the center of the tumor. This finding of course cleared up the cause of the intense jaundice and relatively sudden death. There were no tumors in the stomach, although there were numerous melanomas of the peritoneum, mesenteric glands, and one of the liver.

* Read before the Pecos Valley Medical Society, Dec. 6, 1930.

MIGRATION OF A BULLET TERMINATING IN THE EPIDIDYMIS *

JOHN F. HOGAN, M.D., BALTIMORE

A patient was admitted to the South Baltimore General Hospital, July 15, 1930, with a history of having been shot while attempting to escape from a police officer four days prior to admission.

On examination, a small round wound was found in the right gluteal region on a line with the fifth segment of the sacrum and about 4 cm. from its right border, another about 2 cm. from that, and a third just to the left of the left border of the fifth sacral segment. The first wound was the first port of entry of the bullet, the second wound a port of exit; then the bullet ricocheted over the sacrum and reentered the body in the same plane, that is, about a centimeter to the left of the left border of the fifth sacral segment, and took a course through the perineum, terminating in the lower part of the left side of the scrotum. The patient stated that he had soreness in the left side of the scrotum. On examination of the scrotum, a hard mass was noted in the region of the left epididymis.

The following day the patient was operated on under general anesthesia. The skin of the scrotum and various layers of tissue down to the tunica vaginalis were incised. After the tunica vaginalis was incised and the testicle and epididymis were delivered from the wound there were several blood clots, and a hard mass could be felt partly embedded in the globus minor. As this was being palpated, a 0.38 caliber, regulation police department bullet dropped into the wound. The testicle and scrotal contents were carefully examined. The tunica albuginea was torn in a small area and through this tear the glandular substance of the testicle could be seen; but it could be clearly observed that the gland itself had not been invaded. The torn part of the albuginea was sutured, the tunica vaginalis was turned inside out, a bottle operation was done to prevent subsequent formation of a hydrocele, and the wound was sutured with a drain in its lower angle. The patient made an uneventful recovery, the drain being removed at the end of seventy-two hours. With the exception of the few blood clots and the slight hyperemia around the bullet, there was no sign of epididymitis although, singularly, the patient had developed gonorrhea three days before being shot and, when admitted to the hospital, had a profuse discharge from the urethra which was positive for gonococci.

After a search of the literature, a case was found reported by Mühlpfordt[1] in the German literature. In Mühlpfordt's case, however, the bullet entered near the twelfth rib, passed into the quadratus lumborum muscle and descended, but it did not enter the epididymis. It was assumed by Mühlpfordt that the bullet passed over the seminal vesicle and part of the vas and produced a traumatic epididymitis. There are numerous instances of bullets lodging in the testicle but, in the literature, none can be found lodging in the epididymis and not involving the testicle.

7 East Preston Street.

* From the urologic department of the South Baltimore General Hospital.

1. Mühlpfordt, H.: Dermat. Wchnschr. **89**: 1169 (Aug. 10) 1929.

Special Articles

INCOME FROM MEDICAL PRACTICE

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Annual income twenty pounds, annual expenditures nineteen nineteen six, result happiness. Annual income twenty pounds, annual expenditure twenty pounds ought and six, result misery.

—*Dickens: David Copperfield.*

Perhaps, as he wrote the letter to Timothy in the first century A. D., Paul voiced a keen appreciation of the social and economic stress of the times when he said "the laborer is worthy of his hire." It may not be unreasonable to interpret this phrase as implying also a relative scale of values as applied to various types of service.

It is not possible in a brief statement to trace accurately through the centuries all the influences that have contributed to the present economic system, and although much of the early information on economics pertains to society at large and the lavish expenditures on wars, and certain public improvements achieved by unpaid slave labor, yet it is possible to catch a glimpse of some of the economic peaks and canyons of our early professional confrères.

A few examples of physicians' fees and incomes may be given to show that centuries ago there were in the profession those whose incomes were well nigh fabulous, for the times, and at the same time there were edicts pronounced by the state which required physicians to give their services without pay. It would appear that some of the mandates of medieval times brought "state medicine" more nearly to a reality than any laws now operating.

An inquiry into the incomes of the early Arab physicians shows that the favorite physician of Harun-al-Raschid, who reigned 786-802 A. D., was paid $1,500 annually for "bleeding and purging the Commander of the Faithful." Besides this amount he received a monthly salary of $2,500 and was the recipient of a New Year's purse of $6,500, a grand total income of $38,000 annually. This physician estimated his total fortune in fees at $10,000,000. On being recalled from banishment to heal El-Meiamun, he received a fee of $125,000, one of the largest fees on record, certainly a very unusual fee for the times.

Physicians of those times were, of course, paid in the coin of the realm. The foregoing amounts and those given in the following references are the equivalent in dollars of the amounts received according to the period under consideration.

In Sicily, during the reign of Frederick II, in 1224, physicians were required, by edict, to treat the poor for nothing; for office practice and for patients living within the city, the fee was fixed at 35 cents. For calls outside the city the fee was $3 when the physician bore his own expenses, but if the patient paid the expenses the fee was only $2.25. It should be remembered, however, that at that time the purchasing power of money is said to have been from fifteen to twenty times that at present.

During the fifteen and sixteenth centuries, physicians in ordinary of Henry VII, Henry VIII and Queen Elizabeth all received about $200 annually. In Germany, at this time, the consultation fee for each physician was but $2.50. The most lucrative phase of medical practice was in the treatment of syphilis. In this specialty physicians easily made small fortunes. Kneeling before the statue of Charles VIII at St. Denis, Thierry de Hery remarked to a priest: "Charles VIII is a good enough saint for me: he put 30,000 francs in my pocket when he brought the pox into France." Money at this time is said to have had about eight times the purchasing value of modern money.

During the eighteenth century, physicians' incomes over various parts of Europe seem to have ranged from $3,000 to $90,000. The phenomenal fee for this period was $50,000 for inoculating Catherine of Russia and her son against smallpox; an additional sum of $10,000 was allowed for traveling expenses and the physician was granted an annual pension of $2,500 for life.

TABLE 1.—*Distribution of 6,328 Gross Incomes in 1928 by Magnitude Intervals According to Years of Preparation*

Size of Income	2 Years	3 Years	4 Years	5 Years	6 Years	7 Years	8 Years	9 Years	10 Years and Over	Not Stated	Total
Under $500	..	..	1	..	1	4	2	4	3	..	15
$500- 1,499	4	4	13	1	2	19	11	11	24	1	90
1,500- 2,499	14	23	35	16	16	29	35	29	30	3	230
2,500- 3,499	9	34	57	37	41	65	75	75	45	1	439
3,500- 4,499	16	31	78	61	55	91	75	91	65	3	566
4,500- 5,499	13	59	91	75	68	122	100	95	76	..	699
5,500- 6,499	9	34	90	62	84	98	106	82	71	4	640
6,500- 7,499	2	38	52	75	59	86	66	65	74	1	518
7,500- 8,499	4	26	59	66	45	74	59	53	62	6	454
8,500- 9,499	1	16	34	43	49	59	63	50	54	3	372
9,500- 10,499	2	18	55	46	48	63	46	54	56	4	392
10,500- 11,499	1	6	26	31	31	33	42	27	35	1	233
11,500- 12,499	2	10	26	36	39	39	41	37	50	3	283
12,500- 13,499	..	8	18	13	25	22	26	17	36	..	165
13,500- 14,499	1	5	10	21	19	29	20	16	22	2	145
14,500- 15,499	1	6	12	30	32	23	16	28	29	1	178
15,500- 16,499	..	3	5	18	15	13	10	16	20	1	101
16,500- 17,499	1	4	8	13	7	11	14	13	17	..	88
17,500- 18,499	..	4	5	13	14	13	14	9	15	..	87
18,500- 19,499	..	..	3	9	5	8	10	5	10	..	50
19,500- 20,499	..	2	5	9	8	13	11	11	20	1	80
20,500- 21,499	..	1	3	7	7	7	7	4	12	..	48
21,500- 22,499	..	1	3	5	5	6	4	7	12	..	43
22,500- 23,499	..	..	2	6	8	3	6	3	7	..	35
23,500- 24,499	..	2	3	5	4	5	7	6	8	1	41
24,500- 25,499	..	..	8	4	5	5	14	5	11	..	52
25,500- 26,499	..	..	..	3	2	2	7	8	6	..	28
26,500- 27,499	..	..	1	1	4	2	1	3	4	..	16
27,500- 28,499	1	..	1	1	6	7	3	3	5	..	27
28,500- 29,499	..	..	1	3	1	1	..	..	7	..	13
29,500- 30,499	..	1	2	3	6	4	3	9	7	..	35
Subtotal	81	336	707	713	711	956	894	836	893	36	6,163
30,500-160,499	..	3	12	20	23	17	19	13	55	3	165
Total	81	339	719	733	734	973	913	849	948	39	6,328

Over the period from which these few examples have been drawn, medicine, as it is known today, was gradually and gropingly evolving from magic. Centers of learning were few; training in the art of healing was for a long time individual and more closely resembled an apprenticeship. Because of the lack of organized courses in medicine as they are now known and because of the varying value of money, it is impossible to estimate accurately the financial investment involved. It seems safe to infer, however, that the investment in preparation was only a small fraction of that required today. Moreover, success was undoubtedly more often dependent on chance than on logical use of appropriate curative measures.

In part, at least, the fees and incomes of the old practitioners, large as they ofttimes were, offer an interesting paradox when one considers the state of medical learning. The economic conditions surrounding these early followers of Hippocrates offer no safe premise on which to base a study of the present income

of physicians. With the advent of scientific medicine, increasing requirements for the entrance on a medical course, lengthening of the years of preparation, increase in numbers of physicians and the proportion of specialists, the stern requirement of the state that recognition for licensure shall be granted only to those of specified ability and the ever increasing standards for social and professional standing, a new scale of ratios became necessary when considering reasonable incomes of physicians.

TABLE 2.—*Average Gross Income in 1928 for Physicians Reporting $30,500 or Less and for the Entire Number in Study According to Years of Preparation*

Years of Preparation	Average Gross Income Under $30,500		Average Gross Income for All Reporting	
	Number	Average	Number	Average
2	81	$5,190.73	81	$5,190.73
3	336	6,999.10	339	7,372.55
4	707	7,683.74	719	8,288.92
5	713	9,413.73	733	10,577.13
6	711	9,605.41	734	10,979.19
7	956	8,484.47	973	9,070.43
8	894	8,739.92	913	9,573.80
9	836	8,665.90	849	9,167.97
10 or more	893	9,975.42	948	11,925.91
Unclassified	36	8,789.95	39	11,374.14
Total	6,163	$8,784.65	6,328	$9,764.40

In the present study, the American Medical Association has endeavored to secure from the medical profession sufficient data to show the magnitude of incomes under varying circumstances. The data used in this study were obtained from schedules that reached the profession by way of THE JOURNAL, the *American Medical Association Bulletin* and direct mail. That issue of THE JOURNAL in which the income schedule appeared reached 95,000 physicians. It is impossible to estimate the percentage of these physicians whose attention was caught even to the extent of reading the schedule; it is definitely known that many did not see it. The same schedule reached 65,000 Fellows of the American Medical Association in three different issues. Thus it will be seen that four possible exposures to the appeal for information were provided 65,000 physicians by way of THE JOURNAL and the *Bulletin*. The first contact through THE JOURNAL may be considered, theoretically, as a complete circularization of the American Medical Association members. Likewise the *Bulletin* appeal may be considered as, theoretically, a complete circularization of the Fellows on three separate occasions.

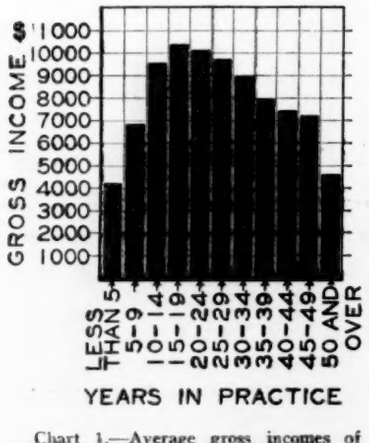

Chart 1.—Average gross incomes of 6,163 physicians who reported for 1928 incomes of $30,500 or less arranged according to years in practice.

The incomplete or selected direct mail circularization comprised a list of about 25,000 physicians. These names were selected at random from the 1927 American Medical Directory by taking every fourth name in capitals. To what extent these 25,000 physicians may have been interested in the study or influenced to reply because of THE JOURNAL and the *Bulletin* appeals cannot be determined. It is known that 2,500 reports were received from direct mail contacts, representing a 10 per cent return. No follow-up letters, telephone calls or personal visits were used to encourage reports. All questionnaires were anonymous and called for a minimum amount of information on which to base the study. It will be seen in table 10 that response came from all parts of the United States with a scattering few sent from the insular and territorial possessions. The response was entirely voluntary and no explanation is available for the comparatively low percentage of returns in certain classifications.

The questions on which a statement has been sought are:

1. The number and average income of physicians according to years of preparation.
2. The number and average income of physicians according to years in practice.
3. The number and average income of physicians according to size of community.
4. The number and average size of income of physicians according to types of practice.
5. The relative number of physicians receiving all or a major part of their income from salary.
6. The correlation between gross and net incomes.

The total number of questionnaires returned was 6,548. Of these, 220 were incomplete or otherwise not useful for the study. The magnitude interval by single thousands of dollars was arbitrarily discontinued at $30,499, since the number of incomes above that amount was somewhat scattering and, furthermore, because the relatively few above this point would unduly distort the average for the mass of the study owing to the large gross amounts reported for individuals.

TABLE 3.—*Distribution of 6,328 Gross Income Reports for 1928 by Magnitude Intervals According to Years in Practice*

Size of Income	Less Than 5 Years	5-9 Years	10-14 Years	15-19 Years	20-24 Years	25-29 Years	30-34 Years	35-39 Years	40-44 Years	45-49 Years	50 Years and Over	Not Stated	Total
Under $500	10	1	1	..	1	..	1	1	..	..	..	..	15
$500- 1,499	38	12	5	9	6	4	5	4	5	..	2	..	90
1,500- 2,499	69	24	11	10	22	23	30	18	10	8	5	..	230
2,500- 3,499	114	69	33	42	40	49	38	31	13	7	2	1	439
3,500- 4,499	107	92	61	56	73	62	50	35	15	8	5	2	566
4,500- 5,499	124	95	94	80	89	72	67	49	19	5	3	2	699
5,500- 6,499	83	113	67	83	90	90	65	27	12	6	4	..	640
6,500- 7,499	54	85	76	67	69	77	52	24	6	7	..	1	518
7,500- 8,499	34	73	69	58	83	56	42	23	8	6	1	1	454
8,500- 9,499	19	71	72	44	53	51	36	16	6	..	3	1	372
9,500- 10,499	26	45	61	52	73	50	45	17	8	3	1	2	382
10,500- 11,499	9	48	47	26	33	34	26	8	2	..	..	..	233
11,500- 12,499	11	36	44	46	51	44	31	13	6	1	..	..	283
12,500- 13,499	10	17	27	23	26	27	25	9	1	..	..	..	165
13,500- 14,499	3	16	27	21	26	27	11	9	2	3	..	..	145
14,500- 15,499	4	18	22	37	33	36	17	7	2	2	..	..	178
15,500- 16,499	2	5	16	25	25	13	4	6	3	2	..	..	101
16,500- 17,499	2	7	17	13	14	18	9	5	3	..	..	..	88
17,500- 18,499	1	9	17	27	12	6	10	1	3	1	..	..	87
18,500- 19,499	..	3	9	9	9	10	5	5	..	..	..	..	50
19,500- 20,499	..	7	12	21	19	11	8	1	1	..	..	..	80
20,500- 21,499	..	2	7	13	8	13	4	1	..	..	..	..	48
21,500- 22,499	1	3	8	7	7	9	7	1	..	..	..	..	43
22,500- 23,499	1	2	7	4	8	6	3	1	2	1	..	..	35
23,500- 24,499	1	5	3	2	11	10	4	5	..	..	..	..	41
24,500- 25,499	..	5	3	10	15	9	7	3	..	..	..	..	52
25,500- 26,499	..	1	..	9	9	5	2	1	1	..	..	..	28
26,500- 27,499	..	..	..	8	4	2	1	1	..	..	..	..	16
27,500- 28,499	1	4	4	6	5	5	2	..	..	..	..	..	27
28,500- 29,499	..	..	3	3	2	..	3	1	..	1	..	..	13
29,500- 30,499	..	2	6	6	13	4	3	..	1	..	..	..	35
Subtotal...	724	870	829	817	929	832	613	323	129	61	26	10	6,163
30,500-160,499	2	5	15	29	38	30	30	13	2	..	..	1	165
Total.....	726	875	844	846	967	862	643	336	131	61	26	11	6,328

It is not claimed that the findings of this study represent the true figures for *all* types of practice or in *every* size community. It is believed, however, that the amounts in most instances are significant. The distribution by place of practice shows that every state is represented, although in some instances the number of returns in proportion to the state membership or the total number of practicing physicians is disappointingly small.

TABLE 4.—*Average Gross Income in 1928 for Physicians Reporting $30,500 or Less and for the Entire Number in Study According to Years in Practice*

Years of Practice	Average Gross Income Under $30,500		Average Gross Income for All Reporting	
	Number	Average	Number	Average
Less than 5	724	$5,193.19	726	$5,289.08
5- 9	870	7,861.95	875	8,022.80
10-14	829	9,559.02	844	10,212.04
15-19	817	10,374.57	846	11,731.84
20-24	929	10,139.38	967	11,650.66
25-29	832	9,708.18	862	10,862.84
30-34	613	8,950.96	643	11,052.10
35-39	323	7,961.04	336	9,586.57
40-44	129	7,446.04	131	8,144.45
45-49	61	7,237.01	61	7,237.01
50 and over	26	4,609.25	26	4,609.25
Unclassified	10	6,270.01	11	9,451.91
Total	6,163	$8,784.65	6,328	$9,764.40

The distribution of the 6,328 reports by magnitude intervals according to years of preparation is given in table 1. It must not be inferred from this table that the number of physicians in the United States who would fall in each of the several years of preparation columns would be in exact proportion to the number here tabulated. A study of these reports, which were not specially selected, directs attention to the following observations:

1. It appears that there is still a large group of physicians who had only a four year preparation, evidently with no subsequent internship.

2. In each successive column it is possible to trace (roughly and somewhat imaginatively) the gradual increase in medical school and state licensure requirements.

3. It is an interesting finding, for which no explanation is offered at this time, that those physicians who reported five, six and ten or more years of preparation have the highest average gross incomes in both the large group with incomes under $30,500 and the total number reporting.

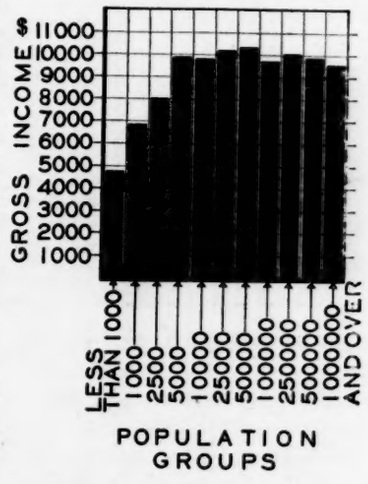

Chart 2.—Average gross income of 6,163 physicians who reported for 1928 incomes of $30,500 or less arranged according to size of community.

The table which gives the distribution according to years in practice (table 3) shows that the greatest interest in the study seems to have been taken by those physicians who have been in practice from twenty to twenty-four years. It is indeed commendable to find physicians who have been in practice more than forty-five years with so fine an appreciation of medical economics to have cooperated willingly in this study. The average gross incomes for the group under $30,500 increase and decrease almost as might be expected. The peak of average annual gross income seems to come during the period of fifteen to nineteen years in practice. The average annual gross incomes for the first period of less than five years in practice and for the period of fifty years and more in practice differ by only a few hundred dollars..

TABLE 5.—*Distribution of 6,328 Gross Income Reports for 1928 by Magnitude Intervals According to Size of Community*

Size of Income	Less Than 1,000	1,000-2,499	2,500-4,999	5,000-9,999	10,000-24,999	25,000-49,999	50,000-99,999	100,000-249,999	250,000-499,999	500,000-999,999	1,000,000 and Over	Not Stated	Total
Under $500	1	3	1	1	1	..	1	..	1	5	1	..	15
$500- 1,499	15	5	4	5	11	1	3	8	11	7	20	..	90
1,500- 2,499	60	21	17	11	23	7	10	16	11	16	38	..	230
2,500- 3,499	84	63	36	21	34	19	18	27	31	32	74	..	439
3,500- 4,499	130	71	43	31	46	32	16	48	26	47	76	..	566
4,500- 5,499	108	85	58	42	67	36	45	49	44	44	119	2	699
5,500- 6,499	119	72	50	46	60	30	35	49	32	40	106	1	640
6,500- 7,499	58	72	42	43	49	34	30	38	26	53	73	..	518
7,500- 8,499	56	52	27	36	43	35	27	44	33	31	70	..	454
8,500- 9,499	23	25	23	39	38	26	37	31	36	30	64	..	372
9,500- 10,499	33	40	36	37	46	20	26	36	18	35	45	..	372
10,500- 11,499	16	15	17	17	23	18	25	21	26	13	42	..	233
11,500- 12,499	19	14	16	15	32	21	24	27	28	36	51	..	283
12,500- 13,499	7	6	11	15	28	9	6	13	15	21	34	..	165
13,500- 14,499	3	7	9	16	8	17	19	10	13	19	24	..	145
14,500- 15,499	7	12	13	10	32	13	14	17	10	15	35	..	178
15,500- 16,499	2	5	5	5	9	6	11	9	9	19	21	..	101
16,500- 17,499	5	5	6	5	7	6	9	7	13	7	18	..	88
17,500- 18,499	..	2	3	5	10	3	10	12	6	9	27	..	87
18,500- 19,499	..	2	5	2	9	2	6	3	5	5	11	..	50
19,500- 20,499	..	1	7	8	5	9	8	8	5	3	26	..	80
20,500- 21,499	1	..	1	2	1	7	5	8	3	7	13	..	48
21,500- 22,499	1	3	3	4	1	4	4	3	3	5	12	..	43
22,500- 23,499	..	1	..	1	2	3	6	7	3	2	10	..	35
23,500- 24,499	..	3	3	2	3	6	1	5	10	4	4	..	41
24,500- 25,499	..	1	1	3	1	5	6	5	6	11	13	..	52
25,500- 26,499	..	..	..	1	3	..	3	5	5	4	7	..	28
26,500- 27,499	..	1	1	2	2	3	..	..	1	2	4	..	16
27,500- 28,499	..	..	1	1	1	1	2	5	6	3	7	..	27
28,500- 29,499	..	..	1	..	..	3	1	1	2	2	3	..	13
29,500- 30,499	..	..	..	1	4	5	3	7	2	7	6	..	35
Subtotal	748	587	440	427	599	381	411	519	440	534	1,074	3	6,163
30,500-160,499	..	2	4	6	12	8	10	23	18	23	59	..	165
Total	748	589	444	433	611	389	421	542	458	557	1,133	3	6,328

TABLE 6.—*Average Gross Income in 1928 for Physicians Reporting $30,500 or Less and for the Entire Number in Study According to Size of Community*

Size of Community	Average Gross Income Under $30,500		Average Gross Income for All Reporting	
	Number	Average	Number	Average
Less than 1,000	748	$5,770.99	748	$5,770.99
1,000- 2,499	587	6,887.15	589	7,018.52
2,500- 4,999	440	8,068.71	444	8,318.12
5,000- 9,999	427	8,896.95	433	9,283.48
10,000- 24,999	599	8,807.38	611	9,405.09
25,000- 49,999	381	10,190.65	389	10,011.39
50,000- 99,999	411	10,322.16	421	11,155.22
100,000-249,999	519	9,731.90	542	11,036.00
250,000-499,999	440	10,043.48	458	11,550.67
500,000-999,999	534	9,863.02	557	11,327.82
1,000,000 and over	1,074	9,569.19	1,133	11,740.20
Unclassified	3	5,428.33	3	5,428.33
Total	6,163	$8,784.65	6,328	$9,764.40

The number of reports that come from rural districts with urban centers of less than 10,000 population was 2,214; this represents 35 per cent of the total returns. Cities ranging from 10,000 to 1,000,000 population furnished 2,981 reports, or 47 per cent; and 1,133, or 18 per cent, came from the metropolitan areas of 1,000,000 or more. It will be seen that, in the group

reporting gross annual incomes of more than $30,500, 100, or 60 per cent, were from cities of 250,000 and over. Considering the heavier costs of maintaining a practice in cities than in rural areas, it is reasonable that larger average gross incomes should be found in the centers of greater population. It would appear, however, that even among cities there is an optimum size with respect to the gross income from the practice of medicine. From the data furnished in this study, this optimum seems to be among cities with a population range of 50,000 to 100,000.

Only those reports from physicians who limit themselves to a particular type of special practice are included in the classification of specialties. There are many physicians who give special attention to some type of limited practice but who supplement their special work with varying amounts of general practice. In many instances the gross annual income of physicians who pay special attention to a particular type of practice is influenced by both the extent to which their time is devoted to the special practice and the difference in the fee schedule for special as compared with general practice. The gross income figures given in table 9 for type of practice are for physicians who limit themselves to the specialty of choice.

TABLE 7.—*Number of Specialists in Study Compared with Total Number in 1929 American Medical Directory*

Type of Practice	Ratio of Specialists Reporting		
	Directory	Study	Per Cent
General practice	130,262	3,810	2.92
Eye, ear, nose and throat	5,961	542	9.09
Internal medicine	3,377	451	13.35
Surgery	3,985	394	9.88
Pediatrics	1,333	225	16.88
Obstetrics and gynecology	1,180	170	14.41
Neurology, psychiatry	1,280	132	10.31
Urology	1,196	119	9.97
Roentgenology	897	109	12.15
Public health	676	64	9.47
Tuberculosis	412	63	15.29
Dermatology	544	56	10.29
Pathology	408	52	12.75
Orthopedic surgery	504	38	7.54
Industrial medicine	152	32	21.05
Proctology	168	19	11.31
Teaching	...	15	.....
Anesthesia	132	12	9.09
Insurance	...	12	.....
Physical therapy	...	10	.....
Bacteriology	39	3	7.69
Total	152,503	6,328	4.15

An examination of tables 7 and 8 gives a comparison of the numbers of reports, according to type of practice, with the total number of physicians in the 1929 American Medical Directory classified under the corresponding specialty. Although the number of schedules from general practitioners represents 60 per cent of the total reports received for this study, the number of physicians in the 1929 American Medical Directory classified under general practice reached 85 per cent of the total. The proportion of eye, ear, nose and throat specialists in the study is 8.5 per cent, while only 3.9 per cent of physicians in the directory are listed under this classification. The percentage of specialists is found in each instance to be higher in the study than for the corresponding classification in the directory. It will be seen, therefore, that the figures for general practice are underweighted while for each type of special practice the amounts are overweighted to varying degrees.

This underweighting and overweighting must be kept in mind when examining table 9, which gives the average annual gross incomes for types of practice. It appears from this table that the largest gross incomes, for the majority, are made in orthopedic surgery. When all reports are considered, including those whose income falls above the $30,500 mark, the largest average gross income shifts to surgery. At the other extreme are found the lowest gross incomes in public health.

In several types of practice the physicians' incomes are derived wholly or for the most part from salary. Public health, tuberculosis, neurology and psychiatry, pathology, industrial medicine, teaching, insurance and bacteriology are types of practice that yield essentially net incomes, since the cost to the physician of maintaining his practice is negligible or nothing at all. If.

TABLE 8.—*Distribution of 6,328 Gross Income Reports for 1928 by Magnitude Intervals According to Type of Practice*

Size of Income	Gen.	O.A. L.R.	I.	S.	Pd.	ObG.	NP.	U.	R.	P.H.	T.	D.	Path.	Ind. Or.	Ind. Med.	Pr.	Teach.	Anes.	Phys. Ins.	Phys. Ther.	Bact.	Total
Under $500	6	1	2	..	3	..	2	..	..	..	1	..	..	..	..	..	..	..	..	..	..	15
$500- 1,499	64	7	3	7	1	4	1	1	..	..	1	1	..	..	..	..	..	..	..	..	..	90
1,500- 2,499	176	9	7	10	7	2	7	1	..	3	1	3	1	..	..	..	..	2	..	1	..	230
2,500- 3,499	309	17	19	8	9	12	26	2	2	5	12	2	4	1	5	..	4	1	..	1	..	439
3,500- 4,499	405	28	21	12	9	6	15	16	7	17	11	3	4	2	4	..	3	1	..	2	..	566
4,500- 5,499	485	33	37	15	23	13	20	10	7	16	13	3	7	2	4	4	2	1	2	2	..	699
5,500- 6,499	457	40	31	22	18	11	8	6	6	12	8	5	6	3	4	..	1	1	1	..	..	640
6,500- 7,499	361	42	28	17	17	10	10	4	6	3	4	4	3	1	4	2	..	1	..	..	1	518
7,500- 8,499	298	44	27	28	10	7	6	12	3	4	2	2	3	2	1	..	..	1	3	1	1	454
8,500- 9,499	221	38	20	21	11	17	3	7	4	1	1	6	3	2	3	2	1	..	1	1	..	372
9,500- 10,499	278	33	26	21	16	6	5	6	2	2	1	3	2	1	4	..	1	1	2	1	1	392
10,500- 11,499	137	25	13	15	14	6	2	5	10	..	..	..	1	1	1	1	1	1	..	..	..	233
11,500- 12,499	145	28	31	15	15	12	9	8	9	1	..	2	1	1	..	2	2	..	2	..	..	283
12,500- 13,499	77	17	20	18	9	5	3	1	6	..	1	1	4	1	..	1	..	1	..	..	..	165
13,500- 14,499	76	11	20	13	7	4	3	2	1	..	1	1	4	..	1	1	..	..	..	..	..	145
14,500- 15,499	84	23	13	18	6	9	2	9	6	..	1	2	3	2	..	..	..	..	..	..	..	178
15,500- 16,499	32	19	13	17	3	4	1	1	5	..	..	3	..	2	..	..	..	..	..	1	..	101
16,500- 17,499	37	11	11	11	4	..	1	4	2	..	2	2	..	2	..	1	..	..	..	..	..	88
17,500- 18,499	30	18	8	11	6	6	2	2	1	..	..	2	1	..	..	..	..	..	..	..	..	87
18,500- 19,499	17	9	9	2	1	1	..	1	1	..	1	1	2	4	..	..	..	..	1	..	..	50
19,500- 20,499	22	15	6	20	5	1	..	2	6	..	1	2	..	..	..	..	..	..	..	..	..	80
20,500- 21,499	12	10	8	5	3	..	2	3	2	..	..	..	..	2	..	1	..	..	..	..	..	48
21,500- 22,499	15	3	6	12	1	1	..	1	1	..	..	..	..	..	..	3	..	..	..	..	..	43
22,500- 23,499	15	4	8	2	1	3	..	1	1	..	..	..	..	..	..	..	..	..	..	..	..	35
23,500- 24,499	8	8	7	10	2	2	..	1	1	..	..	1	..	1	..	..	..	..	..	..	..	41
24,500- 25,499	12	4	12	7	6	6	..	1	3	..	..	..	..	1	..	..	..	..	..	..	..	52
25,500- 26,499	7	5	4	6	2	1	1	..	..	..	..	1	..	1	..	..	..	..	..	..	..	28
26,500- 27,499	3	4	2	4	1	..	..	1	..	..	..	..	..	1	..	..	..	..	..	..	..	16
27,500- 28,499	4	3	2	5	2	4	..	2	3	..	..	1	..	1	..	..	..	..	..	..	..	27
28,500- 29,499	2	2	3	3	..	2	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	13
29,500- 30,499	7	7	4	4	..	4	1	1	3	..	..	..	1	2	..	1	..	..	..	..	..	35
Subtotal	3,782	518	430	359	212	159	131	111	98	64	62	51	50	36	31	19	15	11	12	10	3	6,163
30,500-160,499	28	25	21	35	13	11	1	8	11	..	1	5	2	2	1	..	..	1	..	..	..	165
Total	3,810	543	451	394	225	170	132	119	109	64	63	56	52	38	32	19	15	12	12	10	3	6,328

then, the stated averages in table 9 for the specialties mentioned are considered as closely approximating net rather than gross incomes, the relative position of these respective types of practice will be raised with respect to other specialties and the group as a whole.

TABLE 9.—*Average Gross Income in 1928 for Physicians Reporting $30,500 or Less and for the Entire Number in Study According to Type of Practice*

Type of Practice	Average Gross Income Under $30,500		Average Gross Income for All Reporting	
	Number	Average	Number	Average
General practice	3,782	$7,544.25	3,810	$7,781.03
Eye, ear, nose and throat	518	11,100.31	543	12,747.80
Internal medicine	430	11,395.38	451	12,885.46
Surgery	359	12,809.51	394	16,392.93
Pediatrics	212	10,234.37	225	11,889.08
Obstetrics and gynecology	159	11,386.63	170	13,962.72
Neurology, psychiatry	131	7,063.66	132	7,303.24
Urology	111	10,614.25	119	12,469.11
Roentgenology	98	12,710.40	109	16,082.75
Public health	64	5,135.95	64	5,135.95
Tuberculosis	62	6,049.06	63	6,745.70
Dermatology	51	10,420.15	56	15,742.79
Pathology	50	9,035.53	52	10,851.45
Orthopedic surgery	36	14,677.66	38	15,852.52
Industrial medicine	31	6,451.24	32	7,874.64
Proctology	19	13,001.34	19	13,001.34
Teaching	15	6,251.25	15	6,251.25
Anesthesia	11	6,425.33	12	8,969.97
Insurance	12	9,102.92	12	9,102.92
Physical therapy	10	6,496.40	10	6,496.40
Bacteriology	3	8,333.33	3	8,333.33
Total	6,163	$8,784.65	6,328	$9,764.40

It appears that among the special types of practice there are few gross incomes above $30,500 except in surgery, in eye, ear, nose and throat, in internal medicine, in pediatrics, in obstetrics and gynecology and in roentgenology.

The distribution by place of practice, found in table 10, shows by states the number of physicians

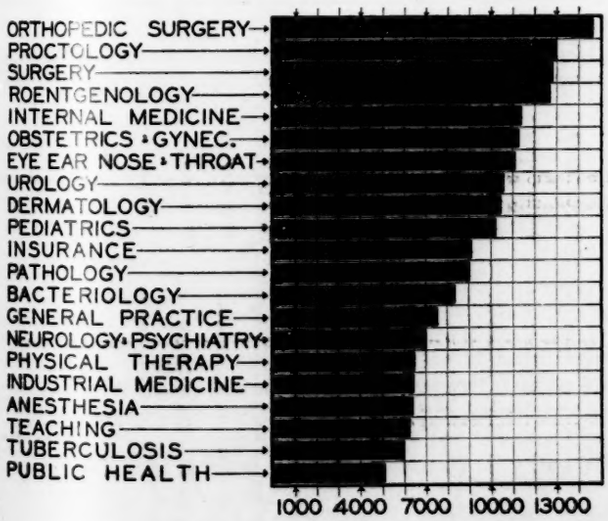

Chart 3.—Average gross income for 6,163 physicians who in 1928 reported incomes of $30,500 or less arranged according to type of practice.

reporting in each magnitude interval. The number from many states is so small that no effort has been made to derive the average gross income according to place of practice. Any average taken from so small a percentage of possible experiences would be wholly unreliable.

The gross incomes of the 6,328 physicians who reported have been arranged in chart 4 according to the percentage of incomes that lie in specified magnitude groups. It will be seen that the largest proportion falling in any magnitude group was 11 per cent in the $4,500-$5,499 interval. The number of reports in this group is 699. In chart 5 the same figures have been rearranged to show the percentage of the 6,328 physicians whose gross incomes in 1928 were less than or more than a specified amount. The chart shows that the median gross income for the entire group reporting lies in the range $6,500-$7,499. Approximately 20 per cent of the 6,328 physicians reported gross incomes

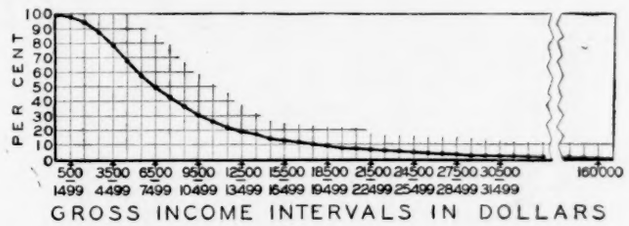

Chart 4.—Percentage of 6,328 physicians whose income for 1928 was any stated amount up to $160,000.

less than $4,500; about 50 per cent showed gross incomes less than $7,500, and for about 80 per cent the gross income reported was less than $13,500. Conversely, about 80 per cent gave their gross income as more than $4,500; about 50 per cent reported more than $7,500, and for about 20 per cent the gross income was given as more than $13,500.

For statistical purposes an accurate picture of the gross income from medical practice, which is usually interpreted as fees, can be had only by omitting the reports of physicians who derive all or most of their income from salary. The complete correction has not been made for the income averages, but the distribution of salaried physicians is found in tables 11 to 14 inclusive. It is interesting to note that the salaried group

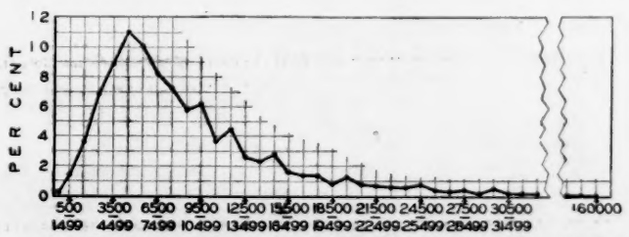

Chart 5.—Percentage of 6,328 physicians whose gross income for 1928 was more than any stated amount up to $160,000.

consists of physicians who, for the most part, have had seven or more years of preparation.

Table 12 seems to indicate that the relative number of salaried physicians decreases as the years in practice increase. The percentage of physicians on salary according to size of community seems to be highest in the communities of 10,000 to 25,000 and those of 500,000 to 1,000,000 population. In certain types of special practice, such as public health, tuberculosis, neurology and psychiatry, pathology, industrial medicine, teaching, insurance and bacteriology, it might be expected that the percentage of physicians on salary might be very high. The experience found in this study seems to verify this presumption.

In the general tabulations the incomes of the 853 salaried physicians have been included. Since the incomes of salaried physicians are primarily net, the merging of these incomes with the remainder of the entire group, which are primarily gross, tends to reduce the true magnitude of the whole group.

In table 15, the reports from the 853 physicians who reported incomes derived wholly or in most part from salary are arranged by magnitude intervals according to the type of practice from which the income was derived.

By the application of appropriate computations to the data of this study, it was possible to determine the

TABLE 10.—*Distribution of 6,328 Gross Income Reports for 1928 by Magnitude Intervals According to Place of Practice*

Size of Income	Alabama	Arizona	Arkansas	California	Colorado	Connecticut	Delaware	Dist. Columbia	Florida	Georgia	Hawaii	Idaho	Illinois	Indiana	Iowa	Kansas	Kentucky	Louisiana	Maine	Maryland	Massachusetts	Michigan	Minnesota	Mississippi	Missouri	Montana	Nebraska	Nevada
Under $500	..	..	..	3	1	..	..	1	..	..	..	..	1	1	..	..	..	2	..	2	2	1	..	..	1	..	..	..
$500- 1,499	1	..	1	2	3	1	..	..	1	2	..	..	15	2	1	..	1	..	1	6	1	12	7	..	5	..	..	..
1,500- 2,499	3	..	4	5	3	..	..	1	3	5	..	..	27	6	10	5	5	2	2	2	10	10	11	22	12	..	6	..
2,500- 3,499	2	..	4	24	7	1	1	5	2	4	..	..	41	22	10	10	10	5	9	7	16	13	16	40	20	1	6	..
3,500- 4,499	2	..	5	29	4	5	1	4	6	11	..	..	38	25	18	10	4	6	7	14	21	11	23	57	19	2	6	..
4,500- 5,499	11	2	8	37	8	7	..	8	6	8	1	3	72	21	22	14	6	8	7	4	25	34	19	44	25	3	10	..
5,500- 6,499	4	..	1	28	5	8	..	10	10	9	1	2	63	26	24	22	4	8	7	7	16	33	20	46	20	1	12	..
6,500- 7,499	3	1	2	23	9	8	..	7	4	6	..	3	43	13	15	18	9	5	8	10	22	29	15	25	15	1	9	2
7,500- 8,499	1	2	1	24	4	12	..	4	4	9	..	1	37	19	16	9	5	5	6	5	11	21	7	25	7	2	5	2
8,500- 9,499	5	2	1	22	3	3	..	2	..	4	..	..	33	14	18	12	2	6	1	2	17	15	10	7	6	2	8	..
9,500- 10,499	3	..	2	23	9	7	..	2	3	4	..	..	40	19	11	11	1	1	2	6	18	18	8	14	5	2	6	..
10,500- 11,499	..	..	..	18	3	2	..	1	1	4	..	..	17	10	7	2	2	6	..	4	4	17	4	4	1	1	3	1
11,500- 12,499	2	..	1	17	1	7	..	5	2	1	..	..	28	8	12	6	3	1	..	7	8	10	7	2	6	1	5	..
12,500- 13,499	..	..	1	10	2	..	1	5	3	3	..	..	22	3	5	3	1	..	1	1	6	5	5	4	5	..	3	..
13,500- 14,499	1	..	..	10	6	2	1	1	..	1	1	1	18	3	3	..	..	1	2	5	8	7	1	3	2	3	3	..
14,500- 15,499	2	..	..	12	2	6	..	2	1	1	..	..	18	6	5	2	1	..	2	2	9	10	8	7	2	..	2	..
15,500- 16,499	1	2	..	12	1	1	..	..	..	..	..	..	4	3	3	1	..	..	..	1	6	3	2	2	4	..	3	..
16,500- 17,499	1	..	..	4	..	1	..	..	..	1	..	..	8	3	2	3	..	2	..	1	3	2	2	..	2	..	..	1
17,500- 18,499	1	..	1	7	1	3	..	2	..	1	..	..	8	1	1	1	2	1	1	1	2	5	1	1	1	..	2	..
18,500- 19,499	..	..	..	2	..	1	..	..	..	1	..	..	6	..	..	..	1	..	1	..	3	1	2	..	1	..	..	..
19,500- 20,499	..	..	1	9	1	1	..	1	..	2	..	..	7	1	..	..	2	..	..	..	1	1	..	2	..	..	3	..
20,500- 21,499	..	..	..	5	2	..	..	..	..	..	..	..	4	2	3	..	..	..	..	..	2	2	2	..	1	1	1	..
21,500- 22,499	1	..	..	1	..	..	..	..	1	..	..	..	7	2	1	1	..	..	1	1	3	..	2	1	..	..	3	..
22,500- 23,499	..	..	1	1	..	1	..	1	..	..	..	..	4	1	2	2	..	..	..	..	..	2	..	..	..	..	..	..
23,500- 24,499	..	..	..	4	1	1	..	1	..	..	..	..	1	1	2	..	..	..	..	1	1	1	..	1	..	..	..	2
24,500- 25,499	2	..	..	4	1	..	..	..	..	..	..	1	1	1	1	..	..	1	..	..	4	1	2	1	5	..	..	..
25,500- 26,499	..	..	..	1	..	1	..	1	2	1	..	..	3	1	1	..	..	..	..	1	1	1	1	..	1	..	..	..
26,500- 27,499	..	1	..	1	..	..	..	1	..	..	..	..	3	..	1	..	..	..	..	..	..	1	..	..	..	..	..	..
27,500- 28,499	1	..	..	3	1	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	2	2	1	..	1	..	..	..
28,500- 29,499	..	1	..	2	..	1	..	..	..	..	..	..	1	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..
29,500- 30,499	..	..	1	3	..	..	..	..	..	..	..	..	2	1	1	..	..	..	..	..	1	1	..	..	..	..	..	..
Subtotal	47	11	35	346	78	80	4	65	49	78	3	11	573	215	195	132	59	61	59	85	228	258	181	315	167	29	96	8
30,500-160,499	1	..	..	16	3	8	..	4	1	..	..	2	20	2	1	..	1	2	..	2	4	2	3	1	4	..	2	..
Total	48	11	35	362	81	88	4	69	50	78	3	13	593	217	196	132	60	63	59	87	232	260	184	316	171	29	98	8

TABLE 10.—*Distribution of 6,328 Gross Income Reports for 1928 by Magnitude Intervals According to Place of Practice—Continued*

Size of Income	New Hampshire	New Jersey	New Mexico	New York	North Carolina	North Dakota	Ohio	Oklahoma	Oregon	Pennsylvania	Philippine Is.	Porto Rico	Rhode Island	South Carolina	South Dakota	Tennessee	Texas	Utah	Vermont	Virginia	Washington	West Virginia	Wisconsin	Wyoming	Virgin Islands	Haiti	Total
Under $500	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	15
$500- 1,499	..	3	..	7	2	..	..	..	2	4	..	..	..	1	..	..	1	..	..	2	3	..	1	..	..	..	90
1,500- 2,499	2	2	..	11	3	1	13	5	2	14	..	..	1	4	..	2	2	..	..	3	4	1	4	2	..	..	230
2,500- 3,499	..	7	..	49	6	4	18	5	4	23	..	..	1	2	3	4	7	2	2	11	6	3	5	..	1	..	439
3,500- 4,499	1	10	5	57	5	1	30	7	2	32	1	..	2	3	6	9	20	..	1	13	8	9	11	3	..	2	566
4,500- 5,499	..	11	1	77	10	1	42	6	4	39	1	..	1	2	4	9	26	3	1	17	12	10	9	..	..	..	699
5,500- 6,499	1	10	1	63	9	4	31	7	5	41	..	..	6	4	4	5	21	2	..	11	6	8	13	1	..	..	640
6,500- 7,499	..	15	..	46	8	5	33	9	2	23	..	1	..	2	7	8	13	3	2	5	11	4	16	..	..	..	518
7,500- 8,499	2	10	2	67	4	3	25	7	6	31	..	..	2	3	..	4	12	..	1	6	6	6	12	1	..	..	454
8,500- 9,499	..	9	2	53	4	3	28	6	3	30	..	..	..	4	..	4	11	1	1	5	6	3	4	..	..	..	372
9,500- 10,499	1	5	..	43	4	2	27	7	4	28	..	..	..	2	1	2	17	1	1	2	9	7	13	1	..	..	392
10,500- 11,499	1	13	1	54	2	3	18	1	4	13	..	..	1	1	..	3	5	6	..	3	6	1	5	..	..	..	233
11,500- 12,499	..	6	..	39	2	4	30	2	2	12	..	..	6	..	..	11	1	1	3	7	5	11	..	..	..	..	283
12,500- 13,499	..	2	..	29	1	1	11	2	3	10	..	..	1	..	1	3	4	1	1	2	2	1	..	..	..	..	165
13,500- 14,499	..	6	..	10	3	2	14	..	5	11	..	..	..	..	1	..	1	4	..	..	3	2	..	..	..	..	145
14,500- 15,499	1	2	1	24	2	1	10	1	3	7	..	..	..	1	..	..	5	1	1	2	6	1	9	..	..	..	178
15,500- 16,499	..	2	..	16	..	..	6	..	2	11	..	..	..	1	..	3	..	1	3	2	3	..	1	1	..	..	101
16,500- 17,499	..	7	2	17	..	..	9	2	2	5	..	..	..	..	..	..	1	1	..	..	5	1	..	..	..	..	88
17,500- 18,499	..	1	..	12	1	..	11	1	..	3	..	..	1	..	1	1	1	2	..	3	3	..	2	..	..	..	87
18,500- 19,499	..	4	..	8	..	1	5	..	..	3	..	..	..	..	1	..	2	..	1	2	..	1	3	..	..	..	50
19,500- 20,499	..	5	..	24	..	..	4	..	..	5	..	..	1	1	..	..	1	..	..	2	2	..	3	..	..	..	80
20,500- 21,499	..	1	..	8	..	..	6	..	..	4	..	..	..	..	1	..	1	..	..	..	2	..	..	..	..	..	48
21,500- 22,499	..	..	8	..	..	2	..	..	6	..	..	..	..	..	..	..	..	..	..	1	..	..	1	..	..	..	43
22,500- 23,499	..	2	..	9	..	..	1	..	..	2	..	..	..	..	..	1	2	1	..	1	..	1	..	..	..	..	35
23,500- 24,499	..	4	..	8	..	..	7	..	..	1	..	..	1	..	1	..	1	..	..	..	..	..	1	..	..	..	41
24,500- 25,499	..	4	..	12	..	..	3	..	..	3	..	..	1	..	..	..	2	..	..	..	1	..	1	..	..	..	32
25,500- 26,499	..	..	..	3	..	..	3	..	..	..	..	..	..	..	..	2	..	..	1	..	2	..	..	1	..	..	28
26,500- 27,499	..	..	..	3	..	..	..	..	..	1	..	..	..	..	1	..	1	..	..	..	..	2	..	..	..	..	16
27,500- 28,499	..	..	..	6	1	1	2	..	..	1	..	..	..	..	..	..	1	..	..	3	..	..	..	..	..	..	27
28,500- 29,499	..	2	..	3	..	..	1	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	13
29,500- 30,499	..	..	..	8	..	..	2	1	1	3	..	..	..	..	..	1	2	..	..	3	..	..	4	..	..	..	35
Subtotal	9	143	23	746	67	39	390	69	62	360	2	1	25	31	32	72	162	30	19	99	117	71	122	10	1	2	6,163
30,500-160,499	..	5	..	45	..	..	14	2	..	8	..	..	1	..	..	1	2	2	..	1	3	..	2	..	..	..	165
Total	9	148	23	791	67	39	404	71	62	368	2	1	26	31	32	73	164	32	19	100	120	71	124	10	1	2	6,328

relationship between gross and net incomes. The first correlations were made for general practice only, according to population groups. Other correlations according to type of practice and years in practice will be made later. The formulas of straight line regression on net income fitted to the data, in which y represents net income and x gross income, are given in table 16.

In general, these equations may be interpreted to mean that except for a constant basic average expense, which varies in different communities, there is a tendency for the net income of general practitioners to be about 67 per cent of gross income.

On the basis of these equations, table 17, giving the estimated average net incomes for each of a series of assumed gross incomes, has been constructed. The figures given in the table were computed by substituting for x the amounts given in the first column under "Assumed Gross Income." Values of net income may be obtained in the same manner for any other assumed amount of gross income. Thus, for instance, the substitution of $2,000 for x in equation 1 gives $886 as being the net income corresponding to $2,000 gross.

The computation is as follows: The assumed gross income, which is represented by x in the formulas, is multiplied by the decimal preceding x in the formula chosen. The result represents the net income plus a basic expense required to conduct a practice. This basic expense was found to be a constant varying according to the size of community in which the physician practices. The true net, which in these computations is an estimate mathematically derived, is found by deducting the amount in the formula preceded by the minus sign. The process for the $2,000 gross income is, then: $2,000 \times 0.6576 = \$1,351.20 - 465.37 = \$885.83$ or, in round numbers, $886.

TABLE 11.—*Number of Physicians in Study Who Derive All or Most of Their Income from Salary, Arranged According to Years of Preparation*

Years of Preparation	Total in Study	Number on Salary
2	81	8
3	339	16
4	719	69
5	733	74
6	734	85
7	973	139
8	913	139
9	849	165
10 or more	948	156
Unclassified	39	2
Total	6,328	853

TABLE 12.—*Number of Physicians in Study Who Derive All or Most of Their Income from Salary, Arranged According to Years in Practice*

Years in Practice	Total in Study	Number on Salary
Less than 5	726	202
5– 9	875	162
10–14	844	142
15–19	846	100
20–24	967	101
25–29	862	61
30–34	643	35
35–39	336	23
40–44	131	14
45–49	61	7
50 and over	26	3
Unclassified	11	3
Total	6,328	853

At a gross income of 0, the values of estimated net income are invariably negative. The amounts shown in the table for the various sized communities opposite 0 assumed gross income represent the minimum average expenditures required to maintain an office. Obviously those expenditures are relatively more important in the lower brackets of gross income than in the higher brackets. For example, at a gross income of $1,000 the estimated net of $210 (for all population groups) represents only 21 per cent of gross; at $5,000 the estimated net income amounts to 59 per cent of the gross; and at $30,000 net makes up about 66 per cent of the gross income. This percentage is practically the same as the ratio of net to gross shown in equation 1, indicating that in the higher incomes the basic expense is relatively negligible.

TABLE 13.—*Number of Physicians in Study Who Derive All or Most of Their Income from Salary, Arranged According to Size of Community*

Size of Community	Total in Study	Number on Salary
Less than 1,000	748	86
1,000– 2,499	589	48
2,500– 4,999	444	49
5,000– 9,999	433	42
10,000– 24,999	611	118
25,000– 49,999	389	60
50,000– 99,999	421	43
100,000–249,999	542	84
250,000–499,999	458	50
500,000–999,999	557	119
1,000,000 or more	1,133	152
Unclassified	3	2
Total	6,328	853

A comparison of the figures in table 17 with figures derived by a similar process from data collected from certain sections of the country shows that the two sets of data do not differ to any great extent. Thus, for Shelby County, Ind., the net income corresponding to $1,000 gross is $462 as compared with $333 for communities with a population of less than 10,000 given in the table; for $10,000 gross, the estimated net based on Shelby County incomes is $6,146, as compared with $6,314 in the present study. For Philadelphia and Detroit, net incomes corresponding to $1,000 gross are approximately 0 and —$343, respectively. Reference

TABLE 14.—*Number of Physicians in Study Who Derive All or Most of Their Income from Salary, Arranged According to Type of Practice*

Type of Practice	Total in Study	Number on Salary	Per Cent on Salary
General practice	3,810	340	8.9
Eye, ear, nose and throat	542	40	7.4
Internal medicine	451	76	16.8
Surgery	394	50	12.7
Pediatrics	225	28	12.4
Obstetrics and gynecology	170	7	0.4
Neurology, psychiatry	132	73	55.4
Urology	119	12	10.0
Roentgenology	109	24	22.0
Public health	64	58	90.6
Tuberculosis	63	47	74.7
Dermatology	56	4	7.1
Pathology	52	30	57.7
Orthopedic surgery	38	7	18.5
Industrial medicine	32	27	84.5
Proctology	19	1	0.53
Teaching	15	12	80.0
Anesthesia	12	4	33.3
Insurance	12	11	91.6
Physical therapy	10	..	....
Bacteriology	3	2	66.6
Total	6,328	853	13.5

to the table shows that the estimate based on the figures for this study for populations of 1,000,000 and over is —$86. For $10,000 gross the corresponding estimates been felt keenly by physicians, both by marked diminution in collections and, in many instances, by an actual falling off in patients seen.

TABLE 15.—*Gross Incomes of 853 Physicians Derived Wholly or for the Most Part from Salary Arranged by Magnitude Intervals According to Type of Practice*

Size of Income	Gen.	O.A. L.R.	I.	S.	Pd.	Ob.G.	N.P.	U.	R.	P.H.	T.	D.	Path.	Or.	Ind. Med.	Pr.	Teach.	Anes.	Ins.	Phys. Ther.	Bact.	Total
Under $500	4	..	2	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	7
$500- 1,499	20	4	1	4	..	1	1	..	..	..	..	1	..	..	..	..	..	..	..	..	..	32
1,500- 2,499	26	5	3	3	5	1	6	..	..	3	1	1	1	..	..	..	..	1	..	..	..	56
2,500- 3,499	63	5	11	2	4	1	21	2	1	4	11	..	4	..	5	..	4	..	..	..	..	138
3,500- 4,499	72	4	12	7	5	1	12	5	2	17	10	1	4	1	4	..	2	1	..	..	..	160
4,500- 5,499	52	7	12	9	7	3	15	1	1	15	13	..	4	2	4	1	2	1	2	..	..	151
5,500- 6,499	43	5	8	4	3	..	4	2	3	12	5	..	5	2	4	..	1	..	1	..	..	102
6,500- 7,499	19	3	8	3	1	..	3	1	4	3	2	1	3	..	2	..	..	1	..	..	1	55
7,500- 8,499	18	2	3	7	1	..	2	..	..	1	2	..	3	1	1	..	..	..	3	..	1	45
8,500- 9,499	7	..	6	2	..	..	2	..	1	..	..	..	2	..	2	..	..	..	1	..	..	23
9,500- 10,499	4	2	3	2	..	..	1	1	1	2	1	..	2	..	4	..	..	..	1	..	..	24
10,500- 11,499	..	..	2	2	1	..	1	..	5	..	..	..	..	1	..	..	1	..	..	..	..	13
11,500- 12,499	3	1	2	1	..	..	1	..	2	1	..	..	..	..	..	..	2	..	2	..	..	15
12,500- 13,499	2	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	3
13,500- 14,499	2	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	3
14,500- 15,499	1	1	1	..	..	..	1	..	2	..	..	..	2	..	..	..	..	..	..	..	..	8
15,500- 16,499	1	..	..	..	1	..	1	..	2	..	..	..	..	..	..	..	..	..	..	..	..	5
16,500- 17,499	..	..	1	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	2
17,500- 18,499	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
18,500- 19,499	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	2
19,500- 20,499	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	1
20,500- 21,499	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1
21,500- 22,499	..	..	1	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2
22,500- 23,499	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1
23,500- 24,499	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1
24,500- 25,499	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	...
25,500- 26,499	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	...
26,500- 27,499	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	...
27,500- 28,499	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	...
28,500- 29,499	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	...
29,500- 30,499	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	...
30,500-160,499	..	1	..	1	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	3
Total	340	40	76	50	28	7	73	12	24	58	47	4	30	7	27	1	12	4	11	..	2	853

of net for Philadelphia and Detroit are $5,990 and $5,360. The figure for Philadelphia compares closely with the amount of $5,998 given in the table. Detroit physicians show higher expenditures and consequent lower net incomes relative to the gross. In San Joaquin County, Calif., the estimated net income corresponding to $10,000 gross is $5,975; in Vermont it is $5,935, each of which amounts correspond closely to that found in table 17 for the same gross income.

TABLE 16.—*Formulas of Straight Line Regression on Net Income*

Population	Formulas of Straight Line
1. All communities	$y = -465.37 + 0.6756x$
2. Under 10,000	$y = -331.60 + 0.6646x$
3. 10,000– 24,999	$y = -640.20 + 0.6881x$
4. 25,000– 49,999	$y = -615.90 + 0.7034x$
5. 50,000– 99,999	$y = -496.82 + 0.6949x$
6. 100,000–499,999	$y = -246.57 + 0.6558x$
7. 500,000–999,999	$y = -924.80 + 0.7343x$
8. 1,000,000 and over	$y = -761.62 + 0.6759x$

It appears that in this study the physicians who reported tended to overestimate their net incomes slightly. This fact may be accounted for in part because the schedules on which the returns were made did not call for item by item listing of expenditures. This detailed listing was carried out in the community studies of the Committee on the Costs of Medical Care in those parts of the country to which reference has been made. The average errors due to this difference, however, are not significant.

These deductions, drawn from the data collected in 1928, would not be complete without some reference to general economic fluctuations. The figures presented in this study cannot be used as indicative of physicians' incomes during periods of financial depression such as that experienced since late in 1929. During the past one and one-half years the general economic unrest has

SUMMARY

From the study of 6,328 random reports of physicians from all parts of the United States, the following observations may be made:

1. The median gross incomes for the entire group reporting lie in the range $6,500-$7,499.

2. It appears that the largest annual gross incomes are being made by physicians who have had ten or more years of preparation. The low gross incomes fall among those physicians who have had three years or less of preparation.

3. The peak of gross income seems to be reached somewhere in the period of fifteen to nineteen years in practice. The gross annual income for the period of five to nine years in practice and the long period of thirty-five to forty-nine years in practice appear to be closely parallel.

4. Although the high average annual incomes for the entire group appears to be reached in the metropolitan areas of 1,000,000 and more population, the low gross

TABLE 17.—*Estimated Net Income of Physicians in General Practice Receiving Specified Amounts of Gross Income**

Assumed Gross Income	Corresponding Estimate of Net Income in Specified Population Groups: All Population Groups	Under 10,000	10,000–24,999	25,000–49,999	50,000–99,999	100,000–499,999	500,000–999,999	1,000,000 and Over
$ 0	$ —465	$ —332	$ —640	$ —616	$ —497	$ —247	$ —925	$ —762
1,000	+210	+333	+48	+87	+198	+409	—191	—86
5,000	2,913	2,991	2,800	2,901	2,978	3,032	2,746	2,618
10,000	6,291	6,314	6,240	6,418	6,452	6,311	6,418	5,998
15,000	9,669	9,637	9,681	9,935	9,927	9,590	10,089	9,377
20,000	13,047	12,960	13,121	13,452	13,401	12,869	13,760	12,757
25,000	16,425	16,283	16,561	16,969	16,876	16,148	17,432	16,137
30,000	19,803	19,606	20,002	20,486	20,350	19,427	21,103	19,516

* Computed from linear equations based on data collected by the American Medical Association in 1928. (Assumed gross incomes are for actual amounts collected.)

averages fall in communities of 2,500 and less population.

5. Orthopedic surgery, although furnishing only thirty-six reports, seems to be the most lucrative type of special practice for those physicians reporting gross incomes of $30,500 and less. For the entire group, the highest average annual gross income shifts to surgery. The lowest average for both groups is found in public health. Physicians in public health are principally on a salary basis and therefore the low position which they occupy in the income list is, in a measure, due to the fact that the list involves the comparison of gross incomes for many other physicians with principally net incomes for those in public health.

6. The largest number of salaried physicians among those reporting for this study have had seven years or more of preparation.

7. In the 6,328 reports studied, the percentage of physicians who derive all or most of their income from salary is largest in the population groups 10,000-25,000 and 500,000-1,000,000.

8. Both the median and the average income of physicians whose income is derived wholly or for the most part from salary is found in the interval $4,500-$5,499; less than 4 per cent of the 853 physicians in the salary or primarily net income classification received more than $12,500 in 1928. About 25 per cent reported income more than $6,500; about 25 per cent reported income less than $3,500.

9. An estimated average net income of $5,250 for general practice is based on the average gross income of $7,781 derived in this study.

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THE INDISPENSABLE USES OF NARCOTICS

THE ABUSE OF NARCOTICS*

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Narcotics may be defined as agents that lessen the relation of the central nervous system to external as well as internal conditions of the body. They act by freeing the mind more or less from the thraldom of the senses, and therein lies their value as well as their danger. It is the "ease and ignorance" with which one may be relieved of a great multiplicity of symptoms by means of narcotics that makes their use an ever present temptation to patient and physician alike; and it is only by patients foreswearing self-medication and by physicians adopting certain definite rules regarding their employment that the abuse of narcotics can be guarded against.

Thus, narcotics should never be employed to remove a diagnostically indispensable symptom. As an illustration, the old and well worn warning against the use of opium in appendicitis at once comes to the mind. In a case of appendical colic, for instance, in which operation may or may not be required, the administration of an opiate may, by the comfort it gives, create the impression that the patient is getting well and obscure the fact that inflammation is setting in and perforation is threatening or has occurred, and immediate operation is required to save life. One may relieve the pain of a strangulated hernia or an intussusception by an opiate and even check the vomiting, so that it may seem that all is well when, as a matter of fact, the patient's death is commencing with necrosis of the bowel.

True, as Cushing says, it should not be necessary to make "the diagnosis at the expense of exhausting pain." Nevertheless, the principle stated should stand as a declaration that, when symptoms are removed by a narcotic, the physician assumes the responsibility of supplying other guiding phenomena, such as temperature, pulse rate, leukocyte count and the observation of stools, to take the place of those obscured. It is the free and easy use of the morphine hypodermic to kill all kinds of pain and then forget about the case that cannot be condemned too strongly.

The danger is that the giving of narcotics may lead to neglect of the really important treatment. It must be admitted that, next to the giving of cathartics, there is nothing else that has led to so many deaths from acute appendicitis as the giving of narcotics. Do away with the excruciating pain, which would have kept the patient from any notion that might in the least increase the tension in the appendix, and these very movements, now painlessly performed, may rupture the appendix, and convert a simple appendicitis, from which no one should die, into a case of peritonitis, one of the most fatal of diseases. The fallacious improvement that a narcotic produces may lead to delay in operation and thus become a direct cause in the higher mortality of the late as compared with the early operation for appendicitis, strangulated hernia or intussusception. Death is, however, not the only punishment meted out for neglect of early operation in acute appendicitis. The gastro-intestinal x-ray series nowadays frequently reveals cases of permanent crippling of the intestine with cecal stasis due to postappendicitis adhesions, whether with or without appendectomy. To blame the operation for these adhesions would certainly be unfair: for an early skilful operation leaves the cecum free and mobile. It is only when the peritoneum has become extensively destroyed by disease that disabling adhesions are the inevitable result.

The injunction against the use of narcotics in such conditions must not, however, be carried to an unreasonable extreme. In case of unavoidable delay or transportation, once operation is decided on and the patient has been suitably instructed and is properly attended—for such a patient should be turned and lifted "as though he had a broken back"—it would be inhumane not to employ a small dose of morphine, enough to obtund the pain, at least. Indeed, the coincident lessening of intestinal peristalsis is now entirely advantageous, as it may, under the circumstances, lessen the tendency to perforation or, if this has occurred, diminish the extent to which the infectious material is disseminated throughout the peritoneal cavity.

Less obvious, though no less certain, is the fact that the popular use of the so-called fever narcotics and of stupefying agents, such as liquor, to enable one to keep up and go about when one has a febrile cold and should be in bed, leads to all sorts of complications, from sinus disease to pneumonia, from rheumatism to nephritis. During an influenza epidemic, in the "good old days," a saloonkeeper boasted before a bar lined

* These articles are prepared under a plan of cooperation between the American Medical Association, the Committee on Drug Addiction of the Division of Medical Sciences of the National Research Council and the Division of Mental Hygiene of the United States Public Health Service. Their object is to reduce the legitimate use of addiction drugs to a minimum by replacement, wherever possible, with other remedies that will accomplish the desired result. The physicians of the United States are the essential group in any such attempt and it is hoped that these articles will be useful to them in their practice. The funds for this work have been donated to the National Research Council by the Bureau of Social Hygiene, Inc.

up with patrons that he could do more against "flu" than the doctors. The doctors' patients were sick and had to be in bed. His customers, when they got the "flu," took a few good drinks, felt better and went to work. Unfortunately, he did not realize that, when some of his "patients" finally did have to go to bed with pneumonia, not all his liquor nor all the physicians' medicines could save them; while a few days in bed at the right time might have prevented the pneumonia and the death. In a similar way, druggists recommend across the counter and patients buy, even without his recommendation, acetysalicylic acid, acetphenetidin, or amidopyrine to obtund the aches and pains of a febrile cold; they go about when they ought to be in bed, until they can no longer do so because of one or more of the many possible extensions or metastatic infections, a minor ailment having become converted into a serious sickness. People must be made to realize that, when micro-organisms of disease have invaded the body to the extent of producing fever, a struggle for supremacy is on: the fittest will survive, either man or microbe. Fever is equivalent to a general mobilization of available military forces in an invaded country. Suppress the fever and its symptoms, cancel the call to mobilization in the face of such invasion, and the enemy invades triumphantly and disastrously. What might have been a mere border skirmish becomes widespread wreck and ruin of the interior.

Of course, when the patient is properly taken care of in bed, a small dose of an appropriate narcotic, whether Dover's powder or its modern succedaneum, an "antipyretic," enough to make the patient comfortable, is advantageous. But it is then necessary to guard against the patient's being harmed by the sweating liable to be induced. The old fashioned physician was never afraid of his fever patient's "taking cold," unless he was sweating. Translated into modern terms, this means that sweating predisposes the patient to excessive cooling, lowering of resistance against infection, and relapse, new invasions or extensions—the so-called complications. At the same time, absolute rest in bed should be insisted on, as the sweating fever patient leaving the bed to go to the toilet, is in imminent danger of chilling.

Nothing is easier than to remove the results of fatigue—headache, backache, nervous irritability, insomnia—by narcotics; nothing is worse, unless the fatigue is due merely to temporary overexertion. When the excessive strain is habitual and the demand for the relief of its ill effects also becomes habitual and is gratified, one is driving head-on to a serious wreck. A rest treatment is needed, not dope. It is unfortunate that the term "rest cure" has become so intimately associated with the famous Weir-Mitchell prescription. It should be recognized that there may be all sorts and degrees of rest treatment. For instance, a regular after-dinner nap is one of these; and it will often do the distracted and harassed housewife or business man more good than any amount of medicine.

Bromide, which is not a narcotic in the sense in which the term is used here, may be of value in such cases by lessening the reactivity of the nervous system, thus favoring rest. A temporary and limited use of such a narcotic as one of the barbital compounds may be permissible to break in on the vicious circle produced by sleeplessness; but it must be employed only in conjunction with diminished demand on the nervous system, with a rest cure, not instead of it.

John Hilton has written (1860 to 1862) a whole book on "Rest and Pain," in which he proved that, as a general proposition, pain indicates rest. One could write a whole book, were it needed, to prove that narcotics, by interfering with the rest that pain would force on us, thwart the natural processes of repair. The physician must therefore resolve never to prescribe a narcotic without at the same time taking care of the cause or the underlying pathologic conditions; and the term narcotic is used here in the wide meaning of "sensation-obtunding medicament," whether it is a coal tar antipyretic or barbiturate, alcohol liquor or opiate.

A useful reaction of the body to disease must never be abolished by narcotics. Thus, cough is in most instances an important means of effecting drainage from the bronchial tree. Stop the cough and the micro-organism-laden discharge, instead of being expectorated and thereby rendered harmless, stagnates and becomes more and more poisonous and damaging to the bronchial wall. The result is that a bronchitis that might have healed in a few days under more physiologic treatment may require weeks and months. Indeed, the lumen of bronchioles may become stopped up with secretion—and this is more likely to happen in the tiny bronchioles of small children—the tributary lung lobules undergo atelectasis from absorption of the air within, and this may be followed by extension of the inflammation into them; thus a case of bronchitis may be converted into bronchopneumonia. While there probably is no danger from the use of a few well chosen doses of morphine to lessen the often excruciatingly painful cough of lobar pleuropneumonia, there may be danger from the use of narcotics in bronchopneumonia or in any case of bronchitis that is liable to eventuate in bronchopneumonia.

Diarrhea is another symptom that must generally not be suppressed by opiates. The diarrheal discharges from the bowel carry away quantities of material that become highly toxic when retained, not only to the system at large but also to the bowel wall itself: thus a simple diarrhea may become converted into a catarrhal or even an ulcerative enterocolitis; and, instead of days, it may take the patient weeks and months to get well.

There is such a thing as useless coughing and useless diarrhea, which may be checked with benefit to the patient and credit to the physician; but there is no doubt that opiates are used much too frequently and occasionally disastrously by some physicians. Sometimes this is done unwittingly, as when compound mixture of glycyrrhiza U. S. P. is prescribed and the prescriber is not aware that it contains an opiate, which points the lesson that not even the pharmacopeia can sin with impunity against the rule that the most active ingredient should be declared in the name of the preparation.

The untoward effects of narcotics must be borne in mind when one thinks of prescribing them. Thus, opiates have a peculiar tendency to cause itching as an after-effect. This may be limited to itching of the nose or of some other orifice of the body, or it may be generalized. Hence, it must not be used to procure sleep in the presence of itching or in the jaundiced patient with his well known tendency to tormenting pruritus. The coal tar analgesics may, on the other hand, be used in the treatment of itching, as they are without this tendency to subsequent aggravation of the pruritus.

Vomiting is a common and distressing after-effect of opium and of morphine. Hence, these should be avoided, if possible, when vomiting constitutes a marked

feature of the clinical picture. This applies most especially to the vomiting of uremia but also to other forms of vomiting, including the vomiting of pregnancy or of alcoholism. It is only when other methods prove unavailing that one may have to resort to opiates with the understanding that they may have to be continued in gradually decreasing dosage to prevent prompt recurrence of the emesis.

Urinary retention is liable to occur as an after-effect, most especially in men with urethral stricture or prostatic enlargement. In such patients, opiates should be used only on the most imperative indication; for, in such cases, the necessity not only for repeated catheterization but even for operation may be forced on one.

The notorious constipating effect of opiates, in addition to the other untoward actions noted, makes them undesirable as analgesics after abdominal operations. Whether one should go to the extreme of resolutely prohibiting the use of opiates in the after-care of all abdominal and pelvic operations, as is done by some experienced surgeons who point to good results as justification of what at times seems almost inhumane practice, may be a moot question. But they certainly should have no place in routine postoperative care.

Formation of habit should be the ever-present specter to inspire fear of prescribing narcotics in chronic or recurring ailments, unless there are malignant conditions or limited tenure of life to make the habit relatively unobjectionable. Especially should physicians, dentists, nurses and pharmacists make it their inviolable rule never to prescribe narcotics for themselves: for from among these classes is recruited a large contingent of those who become afflicted with the habitual use of narcotics. Some narcotics, as opiates and alcohol, are intrinsically habit producing. They operate in creating the notorious craving, partly by being most efficient antagonists to the disagreeable after-effects produced by the agent itself, and partly by causing mental deterioration. But all narcotics are liable to be habit forming, by reason of their very efficiency in relieving symptoms and their inability really to cure any disease. Therefore, as soon as the effect of the agent wears off, the original condition asserts itself, demanding relief. Whenever, therefore, a narcotic is employed, it should merely be as an adjunct to the real curative treatment. It is only when cure is impossbile that the narcotic habit may be a lesser evil than unrelieved suffering. In any case, an extensive range of knowledge of the many available narcotics should permit a choice of the least objectionable and yet most efficient agent for the particular patient to be relieved; and opiates should be appealed to only as a means of last resort.

719 South Ashland Avenue.

Cerebral Edema.—Perhaps one of the most obvious gross changes found in the brain following a severe injury to the head is an increase in its fluid content. This is commonly referred to as cerebral edema. At autopsy the brain appears swollen, and under certain circumstances it is probably actually heavier than normal. The increase in fluid, as judged by gross appearance, is general in distribution. It is not confined to the substance of the brain alone, although this tissue may be wetter than normal; in addition, there is often an excess of fluid in the subarachnoid space and in the ventricular system. This excess of cerebrospinal fluid may be demonstrated clinically. At lumbar puncture the pressure of the fluid is usually increased, the rapidity of its flow is quickened, and the actual amount that may be withdrawn is often considerably greater than normal. Pathologic and physiologic changes underlying this increase in fluid content have not been sufficiently explained.—Rand, C. W.: *Arch. Surg.* **22**:738 (May) 1931.

Council on Physical Therapy

THE COUNCIL ON PHYSICAL THERAPY OF THE AMERICAN MEDICAL ASSOCIATION HAS APPROVED THE FOLLOWING ARTICLE.

H. A. CARTER, Secretary.

MAGNETIC BELTS

Report of the Council on Physical Therapy on the "Vitrona" and "Theronoid"

During the past four or five years, there have been exploited to the public under various names solenoids for use in connection with the house electric-light circuit, for the alleged purpose of curing or alleviating human ailments by means of magnetism. The original device of this kind was the I-on-a-co of Gaylord Wilshire, whose method of exploitation and claims were discussed in THE JOURNAL A. M. A., Jan. 22, 1927.

Two of the most widely advertised and extensively pushed imitations of the I-on-a-co, are, respectively, the "Vitrona" of the Rodney Madison Laboratories, Inc., and the "Theronoid" of the Theronoid Corporation. Both of these devices, like their prototype, consist essentially of several hundred turns of insulated wire, arranged in a coil approximately eighteen inches in diameter and three or four inches in depth, the whole being covered with imitation leather or some similar material. Such coils, when connected to a source of alternating electric current, naturally generate within their periphery an alternating magnetic field. The frequency at which the magnetism is reversed is the same as the frequency of the exciting current; the intensity of the magnetic field depends on the number of turns in the coil and the strength of the current flowing through it.

Among the major claims in the exploitation of these devices has been the one asserting that the solenoid would magnetize the iron in the blood and that such magnetization would bring about the cure desired. Few pathologic states have been omitted in the long list which the exploiters of these solenoids asserted could be eliminated by their devices.

For a half-century or more it has been known that magnetism has no demonstrable effect on the human body and its processes. Numerous experiments have demonstrated that neither a constant nor an alternating magnetic field produces any physiologic effect. The classic experiments of Peterson and Kennelly, published under the title, "Some Physiological Experiments with Magnets at the Edison Laboratories," and published nearly forty years ago (*New York Medical Journal*, Dec. 31, 1892) still stand uncontroverted. The strength of the magnetic field used by Peterson and Kennelly was tremendously greater than that employed in the devices under discussion. Yet the authors declared that the human organism was in no wise appreciably affected and that no susceptible influence was exerted on the iron in the blood, on the circulation, on ciliary or protoplasmic movements, on sensory or motor nerves, or on the brain.

TESTS WITH VITRONA

Numerous inquiries have come to the Council on Physical Therapy asking whether or not there was any scientific basis for the claims made for such devices as those of the Vitrona or the Theronoid. These questions have come from physicians, from government officials, from organizations engaged in combating medical fraud and from the general public. It was because of such requests for information that the Council undertook certain experiments with the Vitrona and the Theronoid.

Working independently of the Council, Dr. A. J. Carlson, Professor of Physiology at the University of Chicago, performed numerous experiments with the Vitrona, both on human and animal subjects, and found absolutely no effect on energy metabolism. Dr. H. B. Williams, and Dr. Kenneth Cole of the Department of Physiology at Columbia University, also were unable to detect, even with an extremely sensitive bridge method, that a human subject absorbed any energy when placed in the field of the Vitrona, through which a 60-cycle alternating current was passed.

Prof. Fred A. Rogers, head of the departments of physics and electrical engineering at Lewis Institute, Chicago, carried out a carefully conducted series of experiments on the Vitrona, using instruments of precision and normal operating conditions. The object of his tests was to determine the quantity of energy, if any, absorbed by a patient when surrounded by this coil through which a 110-volt, 60-cycle alternating current was passed. The details of the experiments will be published in the Annual Reports of the Council. What follows is an outline:

OUTLINE OF EXPERIMENTS WITH VITRONA

A determination was first made of the increase of ohmic resistance due to heat developed in the coil by the passage of the current. The coil was connected to a 110-volt 60-cycle alternating current circuit and the current measured immediately. This was done so that the current passing through the coil might be determined before any increase in the resistance of the coil had resulted from the flow of an electric current. Next the coil was connected in series with an adjustable rheostat and joined to a source of direct current. The rheostat was adjusted until the current flowing through the coil was of the same strength as the effective alternating current previously determined. The direct current was allowed to flow through the coil for a period of one hour, and observations recorded of the current and the voltage drop in the coil at five minute intervals.

From these measurements the resistance of the coil was calculated to be 48.5 ohms at the beginning and increasing to 55.4 ohms at the end of the hour. Then the coil was connected to a source of 60-cycle alternating current which was maintained at a constant potential of 110 volts. A wattmeter, a voltmeter, and an ammeter were connected in the circuit with the coil to determine the necessary power, voltage and current values. A considerable number of preliminary measurements were performed both with and without a human subject in the coil, while the coil was warming up. In order that the effect of the increasing resistance, due to temperature rise, on the current flow and power consumption might be averaged in both cases, alternate measurements, with and without a human subject in the coil, were made. Two different subjects were used and care was taken that no magnetic materials such as keys, knives, etc., were present in the pockets of the subjects. The average of twenty observations without the subject was 110 volts, 0.80795 ampere, and 36.21 watts, and the average of twenty observations with the subject was shown to be 110 volts, 0.80835 ampere, and 36.21 watts, the power consumed being the same in both cases.

After the coil had been connected to the alternating current circuit for a period of three hours, final measurements were made. In addition to measuring the current and power consumption at a constant potential of 110 volts, as outlined above, measurements were made also of the current and power consumption at a constant potential of 110 volts when a tobacco can of 2 oz. capacity was placed in a pocket of the subject. The average of these measurements and calculations was:

Power consumed in coil, without subject	36.68 watts
Power consumed in coil, with subject	36.68 watts
Power consumed in coil, with subject and tobacco can in pocket	36.28 watts

From these results, Professor Rogers concluded:

1.—That the human body has no magnetic property different from that of air;

2.—That there is no absorption of energy by a human subject when placed in the 60 cycle alternating magnetic field produced by the coil of insulated copper wire, known commercially as the Vitrona.

Later, Professor Rogers and the former secretary of the Council conducted a magnetic flux determination by means of the standard ballistic method. The details of this will also appear in the Annual Reports of the Council. At this time it can be stated that these experiments recorded absolutely no change in the number of magnetic lines with or without the human subject in the coil. The total flux was found to be 54,000 lines. As a result, they concluded:

> "The measurements recorded, which were made by a sensitive, standard ballistic method, indicate that a human body has the same magnetic property as air."

The conclusions drawn from both series of experiments conform to the known facts of physiology. If eddy currents sufficiently intense to produce a detectable heating effect were induced in a patient by a 60-cycle alternating magnetic field, that patient would experience the same painful sensation that he would suffer if he were connected directly to the alternating current circuit.

It is known to all who are familiar with the elementary principles of electromagnetic induction that the induced current has the same frequency as the exciting current. The frequency of any eddy currents which may be induced in a patient surrounded by the coil of wire when connected to a 60-cycle alternating current supply would be 60 cycles per second. This frequency would produce neuromuscular response if the strength of the current were sufficient to produce even an extremely slight heating effect.

EXPERIMENTS WITH THERONOID

The Theronoid is, in essence, identical with the Vitrona. It contains approximately 560 turns of insulated wire; it is eighteen inches in diameter and three inches in thickness. The Theronoid that was tested by the Council had 561 turns and was provided with a switch by means of which the line voltage could be applied to either 156 turns or 405 turns of the coil. Experiments similar to those performed with the Vitrona were made with the Theronoid by Professor Rogers and the former secretary of the Council. Absolutely no absorption of power by a human subject surrounded by the Theronoid could be detected. The magnetic flux generated by the Theronoid, both with and without a human subject, was exactly the same. Therefore, the effect on a human being of the fluctuating magnetic field of the Theronoid and of other similar devices is the same as the effect on so much air.

Council on Pharmacy and Chemistry

NEW AND NONOFFICIAL REMEDIES

THE FOLLOWING ADDITIONAL ARTICLES HAVE BEEN ACCEPTED AS CONFORMING TO THE RULES OF THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION FOR ADMISSION TO NEW AND NONOFFICIAL REMEDIES. A COPY OF THE RULES ON WHICH THE COUNCIL BASES ITS ACTION WILL BE SENT ON APPLICATION.

W. A. PUCKNER, Secretary.

DIPHTHERIA TOXOID (See New and Nonofficial Remedies, 1930, p. 364).

Eli Lilly and Company, Indianapolis.

Diphtheria Toxoid.—Prepared from diphtheria toxin by treatment with 0.3 per cent solution of formaldehyde at a temperature approximately 40 C. until its toxicity is so reduced that 5 cc. will not cause early or late symptoms of diphtheria poisoning in a 300 gram guinea-pig. The product is tested for antigenic efficiency by injecting the initial human dose into a large series of guinea-pigs; if at the end of sixty days at least 80 per cent of these animals survive the injection of five minimum lethal doses of diphtheria toxin for ten days, the product is considered satisfactory. Merthiolate 1: 10,000 is used as preservative. Marketed in packages of one immunization treatment consisting of two 1 cc. vials of diphtheria toxoid, and in packages of fifteen immunization treatments consisting of one 30 cc. vial of diphtheria toxoid.

NUPERCAINE-CIBA (See THE JOURNAL, March 21, 1931, p. 946).

The following dosage form has been accepted:

Ampules Solution of Nupercaine-Ciba 25 cc., 1: 1,000.

PSYLLIUM SEED (See New and Nonofficial Remedies, 1930, p. 311).

Schieffelin Psyllium Seed.—A brand of psyllium seed-N. N. R.

Prepared by Schieffelin & Co., New York, N. Y. No U. S. patent or trademark.

COMMITTEE ON FOODS

THE FOLLOWING PRODUCTS HAVE BEEN ACCEPTED AS CONFORMING TO THE RULES OF THE COMMITTEE ON FOODS OF THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION. THESE PRODUCTS ARE APPROVED FOR ADVERTISING IN THE PUBLICATIONS OF THE AMERICAN MEDICAL ASSOCIATION, AND FOR GENERAL PROMULGATION TO THE PUBLIC. THEY WILL BE INCLUDED IN THE BOOK OF ACCEPTED FOODS TO BE PUBLISHED BY THE AMERICAN MEDICAL ASSOCIATION.

RAYMOND HERTWIG, Secretary.

OLDE-TYME BREADS (FAMILY, ROUND, HEARTH AND PULLMAN)

Manufacturer.—The City Bakery, Bellefonte, Pa.

Description.—White bread loaves in wax-paper or "glassine" wrappers.

Manufacture.—The round, family and hearth loaf forms are made by the sponge dough method. The sponge dough formula includes hard spring wheat flour, water, salt, yeast and a yeast food containing calcium sulphate, ammonium chloride, sodium chloride and potassium bromate, which are made into a dough and fermented three hours. Flour, water, salt, yeast, malt syrup, sucrose and lard are added to the fermented sponge dough to make the complete dough mix. The completed dough is fermented and cut by machine into pieces of desired weight. The pieces are rounded up by machine, fermented to twice their original volume, molded into loaf forms, panned and further fermented. The risen dough is baked for about thirty minutes. The baked loaves are thoroughly cooled and wrapped in wax paper.

The fermentation times for the three sponge dough breads are different for each type of loaf. The hearth bread is dusted with corn flour and baked on the oven hearth.

The pullman loaf is prepared by the straight dough method. The formula includes spring wheat flour, water, lard, salt, yeast and sucrose, which are made into a dough. The dough is fermented one hour and forty-five minutes, "punched down," fermented for fifteen minutes, again "punched" and then cut into pieces of desired weight. The pieces are molded, panned, fermented to a given expansion and baked thirty-five minutes. The cooled bread is wrapped in wax paper.

Chemical Composition.—

(proximate analysis of flours used)

Kansas Wheat Flour:	per cent	Hard Spring Wheat Flour:	per cent
Moisture	14.0	Moisture	14.0
Ash	0.43	Ash	0.47
Protein (N × 5.7)	11.1	Protein (N × 5.7)	12.0

(proximate analysis of finished loaves)

	Pullman Loaf, per cent	Sponge Dough Loaf, per cent
Moisture	30.5	34.5
Ash	1.3	1.8
Fat (ether extract)	2.0	1.8
Protein (N × 6.25)	9.5	9.0
Crude fiber	0.2	0.2
Carbohydrates (by difference) other than crude fiber	56.5	52.7

Calories.—

Pullman Loaf	Sponge Dough Loaf
2.82 per gram	2.63 per gram
80.1 per ounce	74.7 per ounce

Claims of Manufacturer.—Olde-Tyme breads are fresh, clean and wholesome, with a delicious flavor.

SLICED PURITY BREAD

Manufacturer.—Purity Baking Company, Ottawa, Ill.

Description.—A sliced white bread made by the sponge dough method.

Manufacture.—The sponge dough ingredients, 70 and 65 per cent patent flours of Northwest and Southwest wheat, respectively, water, yeast, malt syrup, lard and a yeast food containing calcium sulphate, ammonium chloride, sodium chloride and potassium bromate are mixed in a high speed mixer. The sponge dough is fermented for from four to five hours, after which is added flour, water, salt, sucrose, powdered skimmed milk and butter to make the completed dough, which is cut into pieces of desired weight by machine. The pieces are fermented for a short time, molded by machine into loaf form, and panned. The panned dough is fermented and then baked for thirty to thirty-five minutes in a traveling oven with automatic steam and temperature regulation. The cooled loaves are wrapped in wax-paper.

The factory, equipment and storage rooms for the materials used are kept in strictly sanitary condition.

Chemical Composition.—

(proximate analysis)	per cent
Moisture (entire loaf)	37.5
Ash	2.1
Fat (ether extract)	3.0
Protein (N × 6.25)	10.0
Crude fiber	0.2
Carbohydrates (by difference) other than crude fiber	47.2

Calories.—

2.56 per gram
72.7 per ounce

AMAIZO GOLDEN SYRUP
(Corn Syrup and Refiners' Syrup)

Manufacturer.—American Maize-Products Company, New York.

Description.—A blend of corn syrup and refiners' syrup flavored with vanilla extract.

Manufacture.—The base components of Amaizo Golden Syrup are corn syrup and cane sugar refiners' syrup; the former a viscous syrup from the incomplete acid hydrolysis of starch, the latter the residual liquid and noncrystallizable by-product remaining after crystallization of the cane sugar in the refining of that sugar.

Corn syrup preparation:

A pure starch in water suspension is acidified with hydrochloric acid to 0.08 per cent acidity and is boiled under pressure in copper converters to a yellowish turbid liquid of sweet taste; the acids are neutralized with sodium carbonate and the suspended material is permitted to settle as a "mud." The syrup is clarified with "filter-cell" (infusorial earth) and filtered. The yellow color is removed by passing the hot liquor through bone-black or animal charcoal. It is concentrated to 30 degrees Baumé, passed through charcoal until water white and further concentrated under reduced pressure to 40 degrees Baumé. This is the corn syrup used in Amaizo.

Refiners' syrup:

This final by-product of cane sugar refineries contains essentially noncrystallizable sucrose, invert sugar, mineral matter and coloring substances. Its composition follows:

	per cent
Water	19.0
Sucrose	38.0
Invert sugar	23.0
Ash	7.0
Undetermined	13.0

The corn and refiners' syrups are thoroughly mixed and flavored with vanilla extract. The corn syrup is present in the greater proportion. The product is packed in friction top cans.

Chemical Composition.—

(proximate analysis)	
Density (60 F.)	77.0 degrees Brix
	per cent
Total solids (from Brix reading)	77.0
Ash	0.75
Protein (N × 6.25)	0.1
Fat (ether extract)	trace
Dextrose	15.0
Maltose	23.6
Dextrine	30.9
Sucrose	6.5
Sulphites	absent
Arsenic	absent
Calcium (Ca)	0.055
Iron (Fe)	0.011
Phosphorus (P)	0.019
Manganese	absent
Iodine	absent

The ash is largely sodium chloride.
Color by Lovibond tintometer in 1 inch cell..37 to 55 brown

Calories.—

3.09 per gram
87.8 per ounce

Claims of Manufacturer.—Amaizo Golden Syrup, a syrup for cooking, baking and table use, is produced by modern methods. It is wholesome for children.

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SATURDAY, MAY 16, 1931

INTRACUTANEOUS VACCINES

Specific immunologic responses are presumed to be qualitatively identical after administration of any vaccine, regardless of dosage, site of injections, number of injections and interval between injections. The therapeutic failure of arbitrary doses of a proposed vaccine given under any one condition is thus taken as logical evidence of the clinical inefficiency of that vaccine under all conditions. This historical logic is challenged by the newer views in immunology.[1] Suggestive evidence in support of this challenge is reported by Julianelle of the Rockefeller Institute, New York, who has apparently demonstrated striking qualitative differences in immunologic response with different methods of administration of the same vaccine. His most suggestive differences are between intravenously and intracutaneously administered heat-killed cultures of typed pneumococci.

Rabbits injected intravenously with heat-killed pneumococci develop highly specialized, type-specific agglutinins for this particular pneumococcus strain, together with less specialized, species-specific antibodies for other strains. Julianelle was surprised to find that when the same typed vaccines are injected intracutaneously only the semispecialized or species-specific antibodies are formed, the type-specific agglutinins being completely absent.[2] Similar observations were reported by Goodner, who found that, even when living pneumococci are injected into the skin, more than half of his rabbits failed to develop type-specific agglutinins. Bull and McKee report similar failures after applying living typed pneumococci to nasal mucous surfaces.

After intravenous injection of heat-killed pneumococci, rabbits develop an active specific immunity and yield antiserums which passively immunize mice. Intracutaneous injection of the same typed cultures by Julianelle led to the development of an equally effective active immunity but rarely gave rise to circulating antibodies that would protect mice.[3] Intravenous injection with heat-killed pneumococci has long been known to lead to the development of a specific skin hypersensitiveness, and this acquired cutaneous hypersusceptibility is transferable to normal rabbits by transfer of serum. With Julianelle's intracutaneous injections, however, in addition to specific skin hypersensitiveness, a collateral specific ocular hypersusceptibility develops and this acquired ocular idiosyncrasy is not transferable to normal rabbits by transfer of serum. Here apparently is a true ocular "allergy," not dependent on circulating antibodies.[4]

The peculiar biochemical mechanism of intracutaneous vaccination has not yet been determined. Apparently initial or secondary interactions between an injected vaccine and local tissues so modify the vaccine as to alter qualitatively the subsequent antibody response. The possibility of producing two types of acquired hypersensitiveness, one mediated by humoral antibodies and the other independent of humoral factors, by varying the method of injecting a given antigen, may lead to future clarity in the puzzling field of clinical hypersensitiveness. It may also suggest tentative revisions in conventional methods of therapeutic desensitization.

1. Jordan, E. O., and Falk, I. S.: The Newer Knowledge of Bacteriology and Immunology, University of Chicago Press, 1928, chapter 81, p. 1078.

2. Julianelle, L. A.: Reactions of Rabbits to Intracutaneous Injections of Pneumococci and Their Products: I. The Antibody Response, J. Exper. Med. **51**: 441 (March) 1930.

3. Julianelle, L. A.: Reactions of Rabbits to Intracutaneous Injections of Pneumococci and Their Products: II. Resistance to Infection, J. Exper. Med. **51**: 449 (March) 1930.

4. Julianelle, L. A.: Reaction of Rabbits to Intracutaneous Injections of Pneumococci and Their Products: VI. Hypersensitiveness to Pneumococci and Their Products, J. Exper. Med. **51**: 643 (April) 1930.

MEDICAL FACILITIES OF DETROIT AND PHILADELPHIA AND THE MIGRATORY PHYSICIAN

Two of the recently published reports of the Committee on the Costs of Medical Care[5] afford new insight into the economics of medical practice. The reports concern the medical facilities of Philadelphia and of Detroit. The people of Philadelphia spent $54 per capita for the prevention of disease and the care of the sick in 1928. Of this amount 26 per cent was paid to physicians, 13 per cent to dentists, 6 per cent to other practitioners and 27 per cent to hospitals; drugs and medicines cost 20 per cent, and 2 per cent was spent for public health services. The number of physicians per hundred thousand of population in Philadelphia has decreased from 209 in 1906 to 197 in 1929. The main difficulty with medical practice in Philadelphia, according to the investigators, was the multiplicity of agencies without effective coordination. There seemed to be plenty of physicians and hospitals and indeed an adequate supply of almost every type of service. Proper coordination would no doubt bring about greater efficiency and perhaps lower costs. Because the hospital facilities have apparently developed

5. Sinai, Nathan; and Mills, A. B.: A Survey of the Medical Facilities of the City of Philadelphia, 1929, Being in Part a Digest of the "Philadelphia Hospital and Health Survey, 1929," abstract of publication 9, Committee on the Costs of Medical Care, 910 Seventeenth Street, N. W., Washington, D. C.; A Study of Physicians and Dentists in Detroit, 1929, publication 10, Committee on the Costs of Medical Care.

without effective community planning, there is superfluous bed capacity in general and in special hospitals for acute illnesses, but a lack of facilities for nervous, mental, tuberculous and convalescing patients and for patients with chronic diseases.

In Detroit the investigators find that there are fewer physicians and dentists per hundred thousand inhabitants than in Philadelphia. The people of Detroit do not spend as much per capita for physicians and dentists as do those of Philadelphia. Nearly 60 per cent of the physicians in Detroit are specialists, yet specialization has not been carried as far in Detroit as in Philadelphia. The incomes of physicians varied from gross incomes of $1,500 to $50,000; the net incomes varied from actual deficits to $27,000. The median net income of physicians in Detroit was about $4,500. The report on income from medical practice by Dr. R. G. Leland on page 1683 of this issue of THE JOURNAL affords a comprehensive analysis and correlates well with the studies made by other investigators working for the committee on the costs of medical care. Of special interest are the comparisons now made available of the incomes of physicians in various specialties and of those in general practice. From the economic point of view the trend toward specialization is quite understandable.

This type of investigation is of definite value because it affords facts, rather than estimates, from which to draw conclusions. Before it can be fairly charged that the majority of the people are not receiving medical care because they cannot afford to pay what it costs, it must be determined that they are not receiving such care and that they cannot afford to pay for it. Such facts are not yet available from any study that has been made.

In the meantime, the figures to the effect that there are fewer physicians in proportion to the population in Detroit than there are in Philadelphia need not encourage any physician who is not developing an income or a practice in any other community to migrate to Detroit. There is a tendency in times of economic depression for those who are having difficulties to move elsewhere in the hope that new surroundings will provide new conditions and will alleviate the difficulties. The economic depression is, however, not only statewide but nation-wide and even world-wide. A sudden migration of any considerable number of physicians to any single city with the idea that a new location will offer new opportunities is not warranted by any evidence to the effect that the opportunity is at the present time any better in one city than in another. Several state boards of examiners controlling licensure in industrial centers report a significant increase in applications for licensure by reciprocity. Before attempting a transfer of location, a physician will do well to secure from those already on the ground some indication as to the economic situation and the possibilities for earning in the place to which he plans to go.

THE CENSORSHIP OF MEDICAL AND DENTAL ADVERTISING

One of the primary reasons for the establishment of the Council on Pharmacy and Chemistry of the American Medical Association in 1905 was the desire of the editor of THE JOURNAL for scientific advice concerning claims made by advertisers for proprietary remedies. The policy adopted by the Board of Trustees of the American Medical Association gave the fullest measure of support to the Council. The Board of Trustees determined to refuse space in the advertising pages of publications of the American Medical Association to advertisers of proprietary remedies who failed to submit their products or to meet the Council's requirements. Without such support by THE JOURNAL, the work of the Council would inevitably have failed. With that support the Council has made its work and its name respected by the medical profession and the proprietary medical industry.

The advertising pages of the publications issued by the American Medical Association and of the state medical journals that cooperate are the cleanest from this point of view of any medical periodicals ever published. They afford a striking contrast to the pages of the *British Medical Journal* and of the *Lancet* (London), which exercise a so-called censorship without, however, having behind the censorship the type of scientific study and control represented by the Council on Pharmacy and Chemistry. In a recent report of the council of the British Medical Association on the censorship of advertisements in the *British Medical Journal* it is stated:

> While the acceptance of advertisements for publication in the *Journal* is not to be understood to imply a recommendation or guarantee, and while no responsibility can be accepted with regard to the accuracy of the statements contained in the advertisements, a very strict censorship is maintained by the *Journal* committee.
>
> The cash value of advertisements which, in pursuance of the association's policy, have been declined or discontinued, represents a large sum, but the policy of excluding undesirable advertisements from the official organ of the association is a duty which the council feels it owes to the members of the medical profession. All new advertisements submitted for publication are scrutinized in the finance and medical departments of the association. Details of advertisements suspended or refused and of the grounds for the action taken are periodically reviewed by the *Journal* committee.

The Council on Pharmacy and Chemistry does sponsor the accuracy of statements in the advertising of products on which it has acted, and THE JOURNAL refuses to accept advertisements of proprietary products which have not first been found acceptable by the Council on Pharmacy and Chemistry. Certainly THE JOURNAL has suffered no loss of income or of prestige as a result of this policy.

Today the situation which confronts the Council on Dental Therapeutics is somewhat the same as that which confronted THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION in 1905. The Council on Dental Therapeutics began its work with high ideals and with

enthusiasm for what it was attempting to accomplish. In 1930 the trustees of the American Dental Association adopted a resolution which would place the association squarely behind the council in its efforts. Then, at the midwinter session of this association, held in February, 1931, the board of trustees practically reversed its previous action, placing the business manager of the periodical in a position of judgment over the council and making him arbiter as to whether or not the criticisms of the council shall be referred to the manufacturer with a request for modification of claims. Without the power of the trustees of the American Dental Association and the periodical of the association whole-heartedly behind its work, the Council on Dental Therapeutics will be ineffective and simply cannot hope to bring about reform in the field with which it is concerned.

Current Comment

EFFECTS OF FEMALE SEX HORMONE ON CONCEPTION

Recently THE JOURNAL commented [1] on some of the extraordinary developments in experimentation with a view to securing technics for the prevention of conception which would be free from the necessity of individual initiative or the employment of mechanical devices. The procedures concerned involved immunization by the use of extracts of sperm, feeding experiments with diets deficient in vitamin E, and the employment of extracts of ovary and corpus luteum. G. Lombard Kelly [2] has just made available the results of experiments on guinea-pigs, made with a view to determining the effects of injections of the female sex hormone on conception and on pregnancy. It has been shown that the female sex hormone is the active agent in producing estrus and that injections of this hormone would throw even castrated animals into heat. In previous studies [3] Kelly had found that injections of the serum from pregnant women would delay the onset of estrus in guinea-pigs, which was interpreted to mean an excess of corpus luteum in the blood of the woman during gestation. These observations would seem to indicate an antithetic action between the female sex hormone and the corpus luteum hormone. Experiments by Smith [4] indicated that the injection of the female sex hormone into pregnant white rats would terminate the pregnancy if it had not exceeded five days. Other investigators [5] also, using white mice, were able to prevent conception and to interrupt pregnancy at any stage with comparatively small doses of the sex hormone. In an attempt to confirm these observations on guinea-pigs, Kelly found that small doses of the female sex hormone injected for several days into female guinea-pigs immediately after exposure would prevent conception in all cases in which an adequate dosage was used. With a dose ten times as great it was possible to interrupt pregnancy in the animal when about two weeks pregnant, and with a dose fifteen times as great it was possible to terminate gestation after four weeks of pregnancy. In guinea-pigs pregnant from six to eight weeks, injections of dosages from thirty to a hundred times as great brought an end to the pregnancy and almost invariably caused the death of the mother. Notwithstanding intensive study, it was impossible to determine certainly the cause of death. Apparently the deaths were not due to the injected material for the simple reason that dosages six hundred times the dose necessary to prevent conception, when injected into male or nonpregnant female guinea-pigs were apparently not incompatible with life or health. Obviously these observations have a direct bearing on many factors concerned in sterility, the prevention of conception, abortion and similar subjects. No doubt further research will bring to light additional results of importance.

1. New Studies in Birth Control, editorial, J. A. M. A. **96**: 1403 (April 25) 1931.

2. Kelly, G. L.: The Effect of Injections of Female Sex Hormone on Conception and Pregnancy in the Guinea-Pig, Surg. Gynec. Obst. **52**: 713 (March) 1931.

3. Kelly, G. L., and Kelly, Florence L.: The Effect of Serum from Pregnant Women on the Oestrual Cycle of the Guinea-Pig, Surg. Gynec. Obst. **50**: 435 (Feb.) 1930.

4. Smith, M. G.: On the Interruption of Pregnancy in the Rat by the Injection of Ovarian Follicular Extract, Bull. Johns Hopkins Hosp. **39**: 203 (Oct.) 1926.

5. Parkes, A. S., and Bellerby, C. W.: Studies on the Internal Secretions of the Ovary: II. The Effects of Injections of the Oestrus Producing Hormone During Pregnancy, J. Physiol. **62**: 145 (Dec.) 1926; III. The Effects of the Injection of Oestrin During Lactation, ibid. **62**: 301 (Jan.) 1927.

THE NERVES OF THE KIDNEYS

The kidneys are the seat of changes, expressed in variations in urinary secretion, that are analogous in some respects to manifestations that in other parts of the body would be ascribed to nervous regulation. Changes in the circulation to any gland are obviously of commanding importance in the function of the secretory structure. The varying manifestations of the blood supply may be induced by hormonal influence and likewise by the diverse action of vasomotor nerves. In addition to such influences on glands there are instances of direct nervous effects on the secretory cells. This is true in the salivary structures, for example. The renal vessels are well supplied with nerves that undoubtedly affect the blood supply of the kidneys from time to time and elicit definite variations in secretion as a consequence of the circulatory changes brought about by changing innervation. Until recently there has been little evidence of the existence of true secretory nerves to the kidneys; that is, of nerves communicating directly with the parenchymal cells. The studies of Kaufmann and Gottlieb [1] at the Royal Victoria Hospital in Montreal afford objective indications that nerve fibers, plexuses and nerve endings may be found in the kidney tubules. The Canadian investigators feel warranted in asserting that an extensive nonmedullated innervation of the parenchyma of the kidney is present in addition to the well known purely vascular nerve supply. This discovery, if it is verified, may serve to explain some of the peculiarities of urinary secretion and kidney function that have now and then seemed to baffle physiologists. It is reasonable to assume, at any rate, that a nonvascular nerve supply exerts some independent function on the organ that it serves.

1. Kaufmann, J., and Gottlieb, R.: The Innervation of the Renal Parenchyma, Am. J. Physiol. **96**: 40 (Jan.) 1931.

Association News

THE PHILADELPHIA SESSION

The Convention Hall

All sections of the American Medical Association will, during the Philadelphia session, be under one roof. The Philadelphia Convention Hall, now being completed, offers unique features. The building has an exhibition department containing about 70,000 square feet of space.

The hall lies on a piece of ground between the north and south buildings of the Commercial Museum, directly opposite the new Philadelphia General Hospital. The exhibition department is so interconnected with the Commercial Museum that the two buildings may be used together for scientific exhibits.

The building proper is about 408 feet long by 236 feet wide and contains an arena 226 feet wide by 300 feet long, with a height from floor to ceiling of about 88 feet.

The arena is fitted with removable seats. Another feature of this great hall is the stage overlooking the arena floor. This stage may also be used for exhibits. The size of the stage is 116 feet in width by 56 feet in depth and the great steel and asbestos fire curtain with which it is equipped has a weight of 42 tons.

The ventilation has been planned to deliver 23,000,000 cubic feet of fresh air each hour and take out 30,000,000 cubic feet of foul air each hour.

Other features include a banquet room which will accommodate about 1,500 persons, restaurant facilities with proper kitchens and pantries, numerous rooms for the use of committees or small meetings, and ample telephone, telegraph, check room, toilet room and rest room facilities. The building, which is built of fireproof materials and equipped with complete fire safeguards, can be completely depopulated in about ten minutes.

Alumni Reunion

The Medical Alumni of George Washington University will hold a reunion and banquet in Philadelphia at the Ritz-Carlton Hotel, Broad and Walnut streets, Thursday, June 11, at 6 p. m. Every alumnus is requested to be present. This will be the first reunion held during an annual session of the American Medical Association. The president of George Washington University, Dr. Cloyd H. Marvin, and professors will be there. Entertainment in addition to several short talks has been planned. Checks ($5) should be sent to Dr. W. Raymond Thomas, a member of the committee, 3023 Fourteenth Street, N.W., Washington, D. C., as soon as possible.

Local Transportation in Philadelphia

The Convention Hall in Philadelphia may be reached by street car, bus or taxi. Street car fares are two rides for fifteen cents with transfers at time carfare is paid, except in the exchange belt in the center of the city, where an additional transfer fee of three cents is charged. Bus fare is ten cents with a three cent transfer charge. Street cars and busses stop on the near side of the street. In taxicabs five ride as cheaply as one, so that physicians who are planning to go from the hotel to the Convention Hall in a taxi will do well to accumulate groups of five. Attempts are being made to secure chartered bus service from the chief hotels to the Convention Hall at a special rate during the annual session.

Section Dinner

The annual dinner of the Section on Gastro-Enterology and Proctology will be held on Wednesday evening, June 10, at 7 p. m., at the Art Club of Philadelphia, 220 South Broad Street. Tickets at $6 each may be obtained from Dr. A. F. R. Andresen, secretary of the section, 88 Sixth Avenue, Brooklyn.

Hotel Reservations

Members of the Woman's Auxiliary to the American Medical Association, unaccompanied, who desire hotel reservations are requested to write Mrs. Frederick S. Baldi, Room 304 Chamber of Commerce Building, Philadelphia.

During the annual session the headquarters of the Woman's Auxiliary will be in the Roof Garden of the Bellevue-Stratford Hotel.

CONTRIBUTIONS FOR MEMORIAL SALON IN PERSHING HALL

The sum contributed this week to the Pershing Hall Memorial in Paris brings the total to $2,359.60. A list of those who have contributed during the current weeks follows:

Harry J. Weil, M.D., Indianapolis
H. E. Auringer, M.D., Addison, N. Y.
H. A. Rasmussen, M.D., Cebu, P. I.
Herkimer County Medical Society, Herkimer, N. Y.
Oakland County Medical Society, Pontiac, Mich.

MEDICAL BROADCAST FOR THE WEEK

American Medical Association Health Talks

The American Medical Association broadcasts at 10 a. m. on Monday and 10:30 on Saturday, over Station WBBM (770 kilocycles, or 389.4 meters).

The program for the week is as follows:

May 18. Current Trends in Medical Practice.
May 23. Epilepsy.

Five minute health talks may be heard over the Columbia Broadcasting System on Monday, Wednesday, Thursday and Saturday, from 1 to 1:05 p. m., daylight saving time.

The program for the week is as follows:

May 18. Progress in Medicine.
May 20. St. Luke, the Beloved Physician.
May 21. The Evolution of Medical Education.
May 23. Men and Women in Medicine.

ANNUAL CONGRESS ON MEDICAL EDUCATION, MEDICAL LICENSURE AND HOSPITALS

Twenty-Seventh Annual Meeting, held in Chicago, Feb. 16, 17 and 18, 1931

(Continued from page 1630)

DR. ISAAC A. ABT, Chicago, in the Chair

COUNCIL ON MEDICAL EDUCATION AND HOSPITALS

FEBRUARY 18—MORNING

THE TEACHING OF PEDIATRICS

The Present Status of Pediatric Teaching in Medical Schools

DR. BORDEN S. VEEDER, St. Louis: The Committee on Medical Care of Children, of the White House Conference on Child Health, undertook as part of its study the question of medical education in pediatrics. In all, fifty-nine of the sixty-five medical schools giving third and fourth year courses, or 91 per cent, were studied. In analyzing the time allotted to the teaching of pediatrics it is necessary to divide the schools into two groups according to whether or not electives are provided for in the curriculum. In thirty-six schools the schedule is fixed, no choice or election of subjects being given the student. The average number of hours required of each student in pediatrics is 184. Sixty-one per cent of the schools had less and 39 per cent average or more; 16.6 per cent have less than 100 hours and 30 per cent less than 150.

In eighteen schools, electives in pediatrics are offered in addition to required hours. The average for required hours for this group is 154. A study of the electives taken shows a decided interest in pediatrics. In one school with 132 required hours the entire class elected 40 hours additional. In another, 92 per cent of the fourth year class elected 44 or more hours in addition to the 154 required. As near as can be compiled, the students as a whole when pediatrics is elective in addition to being a required subject devote more time to the subject than in the schools in which no electives are offered. In eight of the eighteen schools, or 44 per cent, the average time is insufficient even with electives. In both groups combined, 35 per cent of medical schools give too little time to pediatric instruction.

To compare the hours for pediatrics with the hours assigned internal medicine and to the total required clinical hours, a study of twenty-one schools was made. In this group the average required pediatric hours were 183, required hours for internal medicine 711, and the total required clinical hours 2,008. Pediatrics bears a ratio to internal medicine of 1 to 3.9 and to total clinical hours of 1 to 11. If pediatrics is assigned 200 hours it would amount to a little over 8 per cent of the total 2,400 hours (2×30 weeks $\times$ 40 hours weekly). Allowing medicine a 4 to 1 ratio and surgery the same, or 32 per cent each, and obstetrics another 8 per cent, there would still be available 20 per cent, or 480 hours, for minor courses and electives.

A study was made of twenty-one schools to ascertain how the pediatric teaching hours were used and according to what methods of teaching. There is absolutely no definite plan in the method of distribution. The striking thing is the tremendous difference in methods used in teaching the same subject and covering the same ground. Uniformity is not essential nor desirable. Nevertheless, as the matter is studied, the view is reached that with the same ground to be covered there must be some general method which is most advantageous to the average student and most economical as to the energy and time of the staff. Thoughtful teachers of medicine realize that from a pedagogic standpoint, measured in terms of accomplishment, instruction in our medical schools is far from being perfect. How best to teach a given medical subject in the shortest time is a question still to be answered. Were courses planned with such a background, I venture to say that the medical student would have plenty of time for elective work and for both recreation and contemplation. There is no known definite ratio accepted as to the number of hospital beds necessary to teach a class of medical students. Of the beds available for pediatric cases, approximately half of the schools have less than one bed per student for the fourth year class—the class ordinarily assigned to bedside instruction. Eight schools have less than twenty-five pediatric beds, and nine others less than fifty. Fifty beds may be considered to be about the minimum essential for any school. Stating it another way, in 30 per cent of our schools the number of beds is probably inadequate for teaching pediatrics.

The care of the new-born has been transferred from the obstetric department to the pediatric department in most schools in recent years. In most schools the teaching of the contagious diseases is largely in the hands of the pediatric department. Only a few schools attempt today to maintain infectious hospitals as school departments but rely on municipal hospitals for infectious diseases for teaching material. This is adequate so far as bed facilities are concerned in most schools. With the gradual change in the function of pediatrics that has been taking place, one of the points studied was the instruction given in regard to the normal development of the infant and the child. The development of the infant under 2 years is much more adequately covered than that of the preschool or school child. Body growth is better taught than functional growth, and that in turn better than mental development. Only 54 per cent of the schools give any instruction in the mental development of the child of school age. Moreover, in nearly 60 per cent of the schools the instruction in growth and development is "incidental" rather than "formal." Nothing is more striking than this failure of some departments of pediatrics to meet the needs of the physician of today. There is no question that pediatrics has become a basic branch of clinical medicine. This has been brought about by the realization that it is a subject centered about the child rather than about disease. It is the growing, changing, maturing organism that is being considered in pediatrics and whose physical and mental health or illness maps out largely at this time the course it will follow in adult life. Practically every important field of medicine has learned the importance of childhood. In many schools, this position of pediatrics is recognized. Pediatric departments are relatively as well equipped, staffed and financed as the departments of surgery and medicine. The pediatric chairs are of equal rank and importance. I believe the view is tenable that a medical school in which pediatrics is not recognized as a basic fundamental clinical subject must be excluded from the schools of the first rank regardless of its facilities and staff for the teaching of other subjects.

The Position of Pediatrics in Medicine and in Medical Teaching

Dr. Clifford G. Grulee, Chicago: Before our knowledge of conditions affecting children had developed, the infant and the child were regarded as small adults and treated accordingly. With the development of pediatrics there has come a realization that medical problems affecting children are distinctive and that no longer can the man who is trained in internal medicine and surgery alone be regarded as capable of taking care of the child. Some years ago the people of this country decided almost over night that children must be looked after more carefully and they turned to the medical profession to meet that situation. The medical profession was not equipped to meet this need. This is not the fault of the medical man nor is it the fault of the medical profession, but it must be laid directly at the door of medical education. The man who graduated in medicine twenty-five years ago and is now a directing influence in a medical school has no conception of the conditions pertaining to children and is usually steeped in ignorance because of the lack of training that he received as a student. The consequence is that only those schools which have developed in the last few years and those schools which have been largely developed by outside influence have shown an inclination to meet the needs of the community regarding the education of physicians for the care of children. The result as concerns the medical profession is that in this country there have developed efforts to centralize, or perhaps one might better say socialize, the medical care of children. This is of greater moment than at first may appear. It is the entering wedge for the socialization of medicine and is the consequence of the inadequate training of men in a branch of medicine in which the public has definitely become interested.

What is happening in municipalities all over the country with the approval of women's organizations is the opening of welfare stations to which are admitted children, whether their parents can afford to pay a physician or not. The consequence of this situation is that not only is the volume of pediatric practice reduced but the value of pediatric knowledge in medicine is lessened. Pediatrics covers four distinct periods, the new-born, the infant, the child and the adolescent. In addition to this there are other branches which peculiarly affect children: contagious diseases, infant feeding and the psychology and the psychiatric problems of childhood.

The physician who takes care of children goes out into the world without that preliminary equipment which is regarded as so essential in the training of those who care for adults. No medical school of which I have knowledge gives anything like an adequate course in the nonclinical branches of medicine as they affect the child. The essential differences are in the anatomy and physiology of the child and these receive practically no attention. Physical diagnosis as taught in adults is peculiarly unfitted to meet the situation as regards the child. Yet no attempt is made in the medical schools to give such diagnostic courses with respect to the infant and the child. There is some question whether medical teaching should not primarily be based on pediatrics rather than on adult medicine. I would not be misunderstood. I do not mean that pediatrics is capable of taking on its shoulders such a burden all at once, but I wonder whether in an abstract consideration of the subject one might not come to such a conclusion. The picture of disease in childhood is less likely to be disturbed by the condition of the individual. The child is much more likely to give a more nearly simple picture of disease than is the adult. For the study of disease, the child would seem to offer to the medical student almost an ideal subject.

The loop holes in instruction in pediatrics in practically all medical schools are so large that it is hard to say how such a condition could have developed and how it is to be remedied. Beginning in the preliminary courses and continuing through the clinical work and even to internships in hospitals, the student of medicine is trained inadequately to meet conditions as they affect children; and this in a branch of medicine which has no parallel with other branches and which has its own

standards on which diagnosis and treatment must be based; standards entirely different from standards for adults; a division of medicine which covers the period of growth and combines in it many parts which are necessary to students as a whole, but which are distinctive in their significance and their interpretation. This subject constitutes today a large part of the work that is being done at public expense by the state in which there has been an attempt to institute so-called state medicine. The reason for this may be carried back to the failure to provide graduates in medicine with sufficient equipment to meet the needs of this situation. The time has come when such action must be taken by our medical schools. There will be no slackening of the interest of layman in this subject. Child welfare and child care will be pushed and, if medical schools do not meet the situation, the lay public will.

What Constitutes a Complete Pediatric Department in a Medical School?

DR. A. GRAEME MITCHELL, Cincinnati: Many of the problems of a pediatric department are similar to those which confront medical education as a whole; many are identical with those of any other department in a medical school. It is obvious, too, that a pediatric department, as in the case of any other, can function properly only when it is a unit in a medical school and university which themselves are of the highest type.

There are at least five functions which a complete pediatric department must carry on. These are investigation, undergraduate teaching, graduate teaching, medical care of patients and public health activities. The last two are more properly graduate functions. I am in agreemtnt with those who believe that investigation is the most important function of a medical school and certainly of a number of its departments. This does not imply that it is the one which must consume the largest amount of the budget, nor does it signify that the major portion of the time of all the personnel is devoted to it. Furthermore, investigation and research are not confined to laboratory studies. There are clinical problems and sociological ones that can be pursued in no better place than in the organization fostered by a complete pediatric department. A complete department of pediatrics must have long since passed the dark ages when pediatrics was considered a minor subject and a subdivision of medicine. Pediatrics should be part of a school in which it is recognized as a specialty in which definite knowledge of a particular character is evolved and imparted. Graduate as well as undergraduate instruction should contain a definite time allotment for preventive pediatrics. At least once a week those members of the department who are engaged primarily in research and who may not have clinical ward duties constantly assigned to them should participate in rounds. History meetings and seminars are excellent places for the discussion of difficult cases and reviews of puzzling medical problems. The residents should be assigned to reviewing literature and to preparing systematic summaries on various subjects that have arisen in discussion. The most important and, indeed, a necessary criterion in the medical care of children is pediatric control. All services, such as surgery, orthopedics, otolaryngology, urology and dentistry, should be consultation services; that is, the patient should be a pediatric problem under pediatric supervision. He should not be admitted to any other service than pediatrics or discharged from the hospital from any other. This applies to outpatient and inpatient departments alike. Anything less than this falls greatly below the ideal and results in imperfect care of the child.

I can only state my own belief that the complete pediatric department staff should consist of full-time, part-time and voluntary members. The head of the department, if he gives the amount of time necessary in administration, clinical contacts and teaching, can do little else, but again he must not be confined by regulation to the four walls of any institution. There are many places in clinical service and teaching for the part-time man to whom remuneration (or, better, honorarium) may justly be given. Lastly, there is great advantage to the department in having connected with it the voluntary group. A proper organization allows them freedom and takes advantage of their donations of time and service without burdening them with unnecessary details. The facilities with which the pediatric department works should consist of hospitals, outpatient clinics and laboratories. Institutions and organizations the objects of which are child care may with profit to themselves and to the department be brought into a harmonious functioning by agreements of affiliation. In this way the pediatric department, the medical school and the university benefit and give benefit, and facilities are acquired which cannot, and should not, be financed from university funds.

DISCUSSION ON PAPERS OF DRS. VEEDER, GRULEE AND MITCHELL

DR. JOSEPH BRENNEMANN, Chicago: I feel sure that in the future we are going to have more than 200 hours. The subject demands it. The one place that our entrants and residents want to get into more than anything else is the outpatient department. In the outpatient department one gets closer to things as they really are from a teaching standpoint than anywhere else except in a private practice. I am not convinced that a full time faculty is the ideal thing from a teaching standpoint. I should like to emphasize that the head of a department of pediatrics must be a clinician, whatever else he is. One of the most important things that we can do in a children's hospital is to devote a lot of time and to consider it one of our pleasures and duties to teach interns and residents all that we can possibly teach them in the short time that they are with us. A man may spend years as an intern, as a resident, as an investigator, and he gets no academic recognition for it. Why not, if a degree means anything, ultimately consider the desirability of giving a man who devotes years of special time to that particular subject a degree, if a degree is worth anything? I am interested in the promulgation of investigation. It should be at all times encouraged. On the other hand, the primary object of a medical school is to teach men to become good physicians. The second most important thing is the proper taking care of children. An investigator cannot be made very well. As Carlson says, we don't know of any formula by which to make an investigator, and you cannot keep an investigator down. Investigators are born. We had an intern who just in the ordinary duties of his internship did nearly all the postmortems, did all of his work excellently, did a lot of work for the other men, devoted his evenings to making pictures of pathologic specimens, and produced two exhaustive papers during the time that he was an intern. You can't keep that fellow down. He went into practice and has now taken a position at a very small salary so that he can investigate. That is the one thing he wants to do. With reference to Dr. Grulee's paper, I don't know when I have heard anything more packed full of good philosophy than that paper. There is a great deal of something that is involved when we talk about social medicine.

PROF. FRANZ VON GROER, Lemberg, Poland: There are three different systems in medical teaching, generally, in Europe. We have the central European, the French and the German. Pediatrics, like all other branches of clinical medicine, has its special unit. There are the special university hospitals, completely equipped. There are some clinics and institutions which really are equipped from a quantitative point of view and are very nearly completely equipped, as Dr. Mitchell pointed out, and possess facilities only for teaching purposes in a unit that is isolated from other similar units of medical teaching. There are two things which have not been mentioned in the schemes which have been presented. The first thing is the care of the new-born baby. In Vienna and in some other places the new-born is considered as being the property of the pediatrician and of the pediatric nurse from the very beginning of its life. In Europe we have midwives, which you have not here, but at any rate whether it is the midwife or the doctor who takes the child from the mother, it is given to the pediatrician. We have been able to create a kind of symbiosis, a kind of cooperation, between the obstetrician and the pediatrician. In Lemberg this thing is organized so that in the obstetric university hospital there is a special ward for new-born babies, and this ward is attended by my assistants and my nurses. In the new-born wards we make ward rounds and visit them. They are entirely under our supervision. This not only has direct influence on the baby itself, but, as obstetri-

cians now believe, it has a tremendous influence on the mother also. The other thing I want to emphasize is that among all these institutions which are operating, either within or outside the children's hospital for teaching purposes, there should be a department for mental cases. I have not heard that mentioned here. In Lemberg we have a kind of clinic for mental cases, which is connected with the schools, then with the police, and there is a judge for the children, for nonadults. Older children who are criminal or mentally defective are sent to us to find out whether the child is really organically mentally defective or whether it is a mere psychologic defect, some conflict defect, some complex defect which can be cured by proper handling. This differentiation, this diagnosis, is, if possible, carried out in the clinic; but if we cannot afford it, if a closer observation is necessary, we send these children to special wards, with a special personnel, specially trained assistants and a special physician trained in these matters, and there we observe them and make our diagnosis. If the child belongs to the enormous majority of cases not organically mentally defective, but is only dissocial or has a complex or has been brought up in a conflict environment, we try to send it to the proper place, to a proper pedagogic healing place, for treatment. I believe this is a useful institution, not only from the welfare point of view, but also for the teaching of our graduates. Every pediatrician nowadays (and this problem becomes more and more acute) must come in touch with those defective children. The mistake has been made of mixing up children who can be cured with those who need other care, with idiots and mentally defective children. I believe that one of the most important tasks of the university hospital, of the teaching hospital, is research work. It is true that the investigator must be born, but in spite of that I believe the university hospital should be a research place, that it should not only progress by personal research work of the head of the department or of his associates, but should control everything that is new, and that everything that is a means of progress in pediatrics should be applied and should be made popular. If it really does mean progress it should never be stifled in ordinary routine work. If I understand it in this manner, then of course I must put this research and investigative work ahead of all duties of a university hospital.

DR. F. P. GENGENBACH, Denver: The beginning of a medical education must, after all, start with the new-born baby. I know it seems rather revolutionary to suggest a department of medicine to start in pediatrics, and yet I can't imagine anything more logical than that the diagnosis should start with the new-born baby, should be extended to the infant, and should be further extended to the preschool and the school child, through puberty, up to adolescence. I agree also with Dr. Grulee that the pediatrician is the man who is particularly fitted to carry the individual up through adolescence, a much neglected period. One who has been interested in pediatrics, in pediatric teaching, for many years can't come to any other conclusion than that the real basis of medical education must start with the baby.

DR. ISAAC A. ABT, Chicago: We do not want the impression to go out from this section that we have overstated our case or that we have overemphasized pediatrics or that we can't see the trees because we are in the woods, or anything of that kind. We wish simply to make a frank, unimpassioned statement that pediatrics is an important branch and that pediatrics has contributed a good deal to medical education and to medical progress, and more than anything else those of us who have been watching it along for considerable time have seen a marked decrease in infant morbidity and mortality, not only from what we have done, but from what has been done by our co-workers in laboratories, the field men, the men who are being taught in the undergraduate medical schools who must take these new teachings, this advance and this progressive work, and carry it into the field and in that way become practitioners whose watchword is the reduction or the further reduction of infant morbidity and mortality.

DR. A. C. BACHMEYER, Cincinnati: We have come to look on our clinical teaching in Cincinnati as necessarily being composed primarily of medicine, surgery, pediatrics and obstetrics, because in those four fields the young practitioner finds his greatest practice. We therefore place pediatrics on a par with medicine, with surgery. It seems, as I look over our curriculum in the past, that surgery has had too much emphasis, there has been too much time lost in describing and in having a student see major surgical procedures. Certainly if the general practitioner knows pediatrics, obstetrics and general medicine he is in a better position to build his practice than if pediatrics particularly is treated merely as one of the specialties.

REV. P. J. MAHAN, Chicago: I think it can be stated that in 80 per cent of the private general hospitals of this country there is no place for a pediatrician. I mean that his services are not welcome and he has no opportunity of bringing his services into the hospitals. I would even make the statement that were the pediatrician willing to give his services to the practicing men free, they would not be called for in at least 80 per cent of our private general hospitals throughout this country. Can the medical school change that situation, or is it the responsibility of organized medicine and the medical profession at large? Likewise, you might say that it is the universal practice, recognized, accepted, that the obstetrician is the one who has the care of the infant. We judge that by actualities and not by theories. Again I say, Is this a situation that goes back to the medical schools, or is it a situation that belongs to the medical profession at large, and particularly to organized medicine? These papers have been directed to the medical schools. Any one who has to do with the administration of a medical school knows what he would meet if he were to send forth notice to his faculty that there was going to be a redistribution of time in the clinical side and that all heads of departments were asked to come in and state their needs. All would be asking for far more hours than they have, and there would have to be an eight-year medical school instead of a four-year medical school. I do not think that it should be allowed to go unchallenged that these papers should be directed to the medical school with the absolution benignly granted to the medical profession at large. I feel that the real crux is there.

DR. BORDON S. VEEDER, St. Louis: We have outlined what we considered was a basic minimum material for teaching in pediatrics. Most of the men who have gone into that program, and it has been worked out by a large group of teachers, feel that it would take at least 200 hours to cover that material properly, together with giving certain instruction in physical diagnosis. An important thing brought out in the whole general discussion is the multiplicity of interest of the subject of pediatrics, the public health angle, the preventive angle, the care of the child. For such multiplicity of interests it is necessary that every faculty of pediatrics be developed on a broad basis. If a department has nothing except men who are interested in the laboratory or in the teaching end, or simply in the care of the child, and cannot bring into its subject the whole broad aspect of the child, that department is narrow. In at least two of the departments of pediatrics, special groups have been developed for taking care of the psychiatric and psychologic angles of the child. There is a controversy as to who should handle this material, whether it should come from the psychiatrists and the department of psychiatry or whether it should be a part of the department of pediatrics. I think eventually it will work out that in large part at least this work will come to be part of the department of pediatrics. There were 165 medical schools a few years ago. There are sixty-five now. The majority of those schools were eliminated because they were proprietary schools, and nearly every proprietary school was started and founded and run by surgeons. That is why surgery has dominated so much of the picture of American medicine, greatly to the detriment of medicine as a whole. If there is any subject in medicine which is distinctly a specialty and requires years of training, it is surgery. The surgeon should go through years of training. However, the average man who goes out into practice takes on immediately and must be qualified to take on immediately the children of the community. I suppose that there are a thousand children in America for every major surgical operation that is done in America. I would not say that the physician should have a thousand times as much time in pediatrics for his instruction, but he certainly should be given a large

amount of time which is given to the work in some of the other subjects.

DR. CLIFFORD G. GRULEE, Chicago: The reason medical schools do not give more time to pediatrics is that the men who run medical schools are men who do not know anything about pediatrics, in large measure, nor is there any control which in those medical schools distributes legitimately the time to be spent on pediatrics or other specialties. They appeal to the faculty, they appeal to a group of men who have been grounded in the idea that the medical school consists of departments of medicine and departments of surgery, and they appeal to that faculty to know whether they shall give to pediatrics more time for teaching. That is the situation, and it is continuing itself. There seems to be no realization from the discussion as to what we are coming up against in state medicine. Unless our medical schools realize that they have to give more pediatrics, the medical profession is going to come right up against that. There are at least a third of the hospitals that we can get knowledge of in the United States that teach no pediatrics to their nurses at all. The number of beds for children in the general hospitals of this country is absolutely inadequate for the teaching of pediatrics to nurses. Seven of the children's hospitals in this country do not teach the nurses pediatrics. The thing must lie with the medical profession, but the people who are responsible for the ideas that the medical profession have are the medical schools.

DR. ISAAC A. ABT, Chicago: I should not like to see the meeting adjourn without emphasizing the point that Father Mahan made, that, no matter how many congresses of pediatric education or whatever other kind of congresses are held to perfect medical education, it is not going to do a bit of good so long as physicians assume the attitude that they do in the hospitals. So long as there is this greed for gold, so long will this profession remain under the influence of the most pernicious elements, and so long will the public become dissatisfied with our methods. When a child is sent to a hospital it is entitled to the best kind of treatment, the best kind of professional care, the best thought that can be given in the community in which that child lives. If that is not done, it redounds to the disrepute of the medical profession. That is the reason the public is becoming dissatisfied, that there is this widespread talk about the socialization of medicine. The public is beginning to and will define itself against the practice of physicians who are more or less nefarious. If we are going to keep up the high standards that have been set for our profession, we must clean house.

DR. A. GRAEME MITCHELL, Cincinnati: If we regard certain services as consultation services, that is a solution to the thing. When any one talks to a surgeon about this, there is a sort of reaction, but the surgeon has no argument; he immediately admits that he does not know how to take care of the child. We must not call him in to tell him that he is to operate, but he is part of the care of the child. The whole thing comes back to what is the best thing for the child. The surgeon has to admit, the laryngologist has to admit, that if he is thinking of the welfare of the child, a man better trained to handle the situation is the man who should be in charge. One of the biggest problems, mentioned many times, is the study of the child and the care of the child with mental conditions. I think it is the big field of opportunity. The solution is the training of a group of people who might be called psychiatric pediatricians or pediatric psychiatrists, but I think it can be done better that way and linked up to the pediatric department rather than with the loose coordination between psychiatry and pediatrics. I heartily agree with the question of pediatric nursing. I think that the schools of nursing ought to realize that they do throw a rather definite burden on the pediatric department when they ask for certain things. I think that the school of nursing ought to be organized so as to help that situation. The pediatric department sometimes has been limited in its personnel, and so forth, and it has planned its whole campaign of teaching undergraduate students and graduate students to take most of the time. I almost believe that in order to do the job right there ought to be an extra man in the pediatric department.

(To be continued)

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST: SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC.)

ALABAMA

State Medical Election.—At the annual meeting of the Medical Association of the State of Alabama, April 24, Dr. Marion Toulmin Gaines, Mobile, was elected president; Dr. Douglas L. Cannon, Montgomery, remains the secretary. The next annual session will be held at Mobile, April 19-22, 1932.

ARKANSAS

State Medical Election.—At the annual meeting of the Arkansas Medical Society in Texarkana, April 23, Dr. Darmon A. Rhinehart, Little Rock, was installed as president; Dr. William H. Mock, Prairie Grove, made president-elect; Drs. Leonce J. Kosminsky, Texarkana, William A. Snodgrass, Little Rock, and Alphonso Isom, Dumas, vice presidents; Merlin J. Kilbury, Little Rock, treasurer, and Dr. William R. Bathurst, Little Rock, secretary, reelected. The next annual meeting will be held in Little Rock during May.

New County Health Units.—Five full time county medical directors and thirty-one public health nurses have been assigned to work in Arkansas under the recent appropriation, authorized by Congress, providing for additional public health work in thirty-two drought states. The health workers were to have assumed their duties in the various counties assigned, March 30, after having devoted a week to studying the operation of units in other counties. There were twenty-four full time health units in Arkansas, and the five added under the new plan will be supplemented by additional counties soon, it is reported; part time county health officers will direct the work in the other twenty-five counties to which public health nurses have been assigned. The federal government will pay all expenses of the service until July, 1932.

Society News.—Drs. William J. Sheddan, Osceola, and Vernon R. Fox, Manila, addressed the Mississippi County Medical Society at Osceola, February 10, on nonsuppurative myositis and tularemia, respectively; the society was addressed, March 10, by Drs. Conley H. Sanford, Memphis, on "Endocrine Disorders," and John A. McIntosh, Jr., Memphis, "Symptomatic Laboratory Suggestions."——Dr. Arthur P. Wakefield, Boston, addressed the Pulaski County Medical Society, April 2, on tuberculosis; the society was addressed, March 30, by Dr. William D. Mims, Memphis, Tenn., on "Blood Transfusion and the Lindeman Method as Adapted to Infants and Children." ——The Lawrence County Medical Society was addressed, March 10, at Walnut Ridge by Drs. Thomas C. Guthrie, Smithville, and Lucius Carl Sanders, Memphis, on tuberculosis and syphilis, respectively.

CALIFORNIA

Approval of Laboratories.—At a recent meeting of the California Department of Public Health the regulations governing the approval of laboratories were amended as follows: From and after Jan. 1, 1933, all technicians entrusted with independent work, in all laboratories approved by the state board of public health, shall hold certificates of proficiency covering all divisions of the work that they may be called on to do.

Cancer Mortality Increases.—Deaths from cancer in California increased by 677 in 1930, it is reported, a total of 7,195 residents of the state having died of this disease last year, representing a cancer death rate of 125.5 per hundred thousand of population as compared with a rate of 118.3 in 1929. The mortality rate from this cause was 107.2 in 1921. Nearly one third of all cancer deaths last year were caused by cancer of the stomach or liver.

Bills Introduced.—S. 947, to amend the law relating to the duties of coroners, proposes to deprive coroners of jurisdiction in cases of deaths occurring without medical attendance, unless the deaths have been under such circumstances as to afford reasonable grounds for suspecting that they were occasioned by criminal acts. A. 1927, to amend the medical practice act, proposes that 75 per cent of all fines or forfeitures of bail, in prosecutions initiated by the board of osteopathic examiners, wherein persons are charged with violations of the medical

practice act, shall be paid to that board. Under the present law 75 per cent of all fines and forfeitures for violations of the medical practice act are paid to the board of medical examiners.

Action on Licensure Cases.—At a meeting of the California State Board of Medical Examiners, February 2-5, in Los Angeles, the license of Dr. Samuel D. Cotterell, which had been revoked, Oct. 22, 1930, was restored, and Dr. Cotterell was placed on probation for five years without narcotic privileges or possession. Dr. Donald Eugene Harris, whose license had been revoked March 1, 1928, was restored to practice and placed on probation for five years without narcotic or alcohol privileges or permits. The license of Dr. Walter C. Hoyt, which had been revoked, Oct. 22, 1930, was restored, and he was placed on probation for five years without alcohol permit. Dr. Charles R. Knox's probation was set aside, as was that of Dr. Frederick K. Strasser. The license of Dr. Orin R. Wakefield, which was revoked, July 15, 1926, was restored, and he was placed on probation for five years without alcohol or narcotic permit or possession. Narcotic privileges were restored to Dr. James A. Hadley.

CONNECTICUT

Annual Meetings of County Societies.—The one hundred and forty-seventh annual meeting of the New Haven County Medical Association was held at the Racebrook Country Club, New Haven, April 23. The general topic for discussion was the care of communicable diseases outside the hospital, Drs. Stephen J. Maher, New Haven, speaking on tuberculosis; John H. Foster, Waterbury, upper respiratory tract infections; James H. Root, Waterbury, scarlet fever; Grover F. Powers, New Haven, use of serums and vaccines in contagious diseases, and John L. Rice, New Haven, the public health aspect. A golf tournament for the association cup featured the entertainment program.——The one hundred and fortieth annual meeting of the Hartford County Medical Association was held at Hartford, April 7. Papers were given by Drs. James Raglan Miller on "Diagnostic and Prognostic Values of the Blood Sedimentation Test"; Reuben Ottenberg, New York, "Practical Advances in the Study of the Liver and Its Diseases," and Albert R. Keith, "A Philosophical Phantasy of a Medical Mind."——Dr. Herbert M. Bowlby, New York, addressed the Fairfield County Medical Association, April 14, at Bridgeport, on "Traumatic Neuroses."

FLORIDA

Bills Introduced.—S. 52, to amend the pharmacy practice act, proposes that physicians who for ten years prior to April 5, 1931, had been licensed to practice medicine in the state shall be entitled to register as pharmacists without examinations. S. 64 proposes to create a state board of hair dressing and cosmetology examiners and to regulate those practices. The licenses to be granted by the board are to permit holders thereof to remove superfluous hair, warts or moles by the use of electricity or otherwise. H. 432 proposes to create a board of optometry examiners and to regulate the practice of optometry. Nothing in the act is to be construed to apply to duly licensed physicians. H. 459, to amend the pharmacy practice act, proposes (1) to authorize the board of pharmacy to charge a $5 annual registration fee and (2) to authorize the board to turn over to the Florida Pharmaceutical Association, for the advancement of pharmacy, not to exceed three fifths of the annual renewal fees received. S. 179 proposes to authorize counties (1) to cooperate with the state board of health in the establishment of full time local health units, (2) to levy special county taxes therefor and (3) to authorize two or more counties to agree on joint or concurrent action. H. 446, to amend the naturopathic practice act, proposes to define naturopathy as "the use and practice of psychological, mechanical and material health sciences to aid in purifying, cleansing and normalizing human tissues for the preservation or restoration of health, according to the fundamental principles of anatomy, physiology, and applied psychology, as may be required. Naturopathic practice employs, among other agencies, phytotherapy, dietetics, psychotherapy, suggestotherapy, zone-therapy, biochemistry, hygiene, first aid and sanitation, provided, however, that nothing in this act shall be held or construed to authorize any naturopathic physician licensed hereunder to practice materia medica or surgery or chiropractic, nor shall the provisions of this act in any manner apply to or affect the practice of osteopathy, chiropractic, Christian science, the operation of modern electric Turkish baths, mechanical and Swedish massage, or heliotherapy, or any other treatment authorized and provided for by law for the cure or prevention of disease and ailments."

GEORGIA

Personal.—A portrait of the late Dr. Edward C. Davis, one of the organizers of the Emory Medical Unit with the American Expeditionary Forces in France, was presented, April 10, to Emory University Medical School by Dr. Frank K. Boland on behalf of the unit. Two daughters of Dr. Davis unveiled the portrait, Dr. William W. Anderson acted as master of ceremonies, and Harvey W. Cox, LL.D., president of the university, made an address.

Society News.—A symposium on the endocrine glands was conducted before the Fulton County Medical Society, May 7. Dr. Champneys H. Holmes addressed the society, April 16, on "Spontaneous Pneumothorax." Dr. Benjamin T. Beasley, Jr., Atlanta, spoke on "The Aschheim-Zondek Test as an Aid in Differentiating Pregnancy from Other Pelvic Conditions."—Dr. Allen H. Bunce addressed a recent meeting of the Ninth District Medical Society at Gainesville on "Focal Infection—Is It a Practical Theory?"——Dr. Henry M. Tolleson, Hahira, addressed the Eleventh District Medical Society, April 14, among others, on "Treatment of Chronic Eczema with Reference to the Use of Sodium Thiosulphate," and Dr. Julian E. Gammon, Jacksonville, Fla., "Infectious Arthritis Deformans."——The Fifth District Medical Society was addressed, April 22, among others, by Drs. Ben Hill Clifton and Rudolph A. Bartholomew, Atlanta, on "Tetany Following Thyroidectomy" and William W. Young, Atlanta, "Common Sense Attitude Toward Psychoneurosis."

ILLINOIS

Sentenced to the Penitentiary.—Dr. Jesse Madison Stilson, Galena, was committed to the Illinois state penitentiary, January 7, to serve a twenty year sentence. Dr. Stilson was found guilty of murder following the death from abortion of a girl in Stockton last December.

Bills Introduced.—S. 610 proposes to accord hospitals, physicians and nurses, who care for or treat injured persons, liens on any sums received by such persons by reason of their injuries. The provisions of the bill, however, are not to apply to money recovered under the workmen's compensation act. S. 605, to amend the nursing act, requires applicants for licenses to be at least 21 years of age. Under the present law such applicants must be 22 years of age.

Practitioners Honored.—A banquet was recently given by the Perry County Medical Society in honor of Drs. Martin C. Carr and James T. Leigh, Du Quoin, and James W. Smith, Cutler, all of whom have been in the practice of medicine fifty years or more. Drs. Roy H. Milligan, Samuel B. Westlake and Lee B. Harrison, all of St. Louis, spoke on "Otological Problems of General Medicine," "Cancer of the Larynx," and "Common Cardiac Ailments," respectively. Dr. Albert H. Hattan observed his fifty-third anniversary in the practice of medicine in Peru, March 28; he had previously practiced three years in La Rose. Dr. James H. Fountain, Chapin, was guest of honor at a dinner, April 9, given by the Morgan County Medical Society in celebration of his completion of fifty years in the practice of medicine.

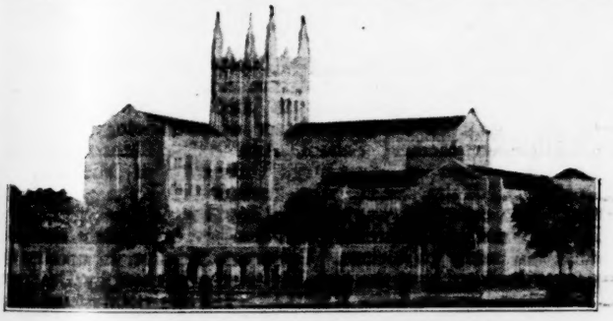
Personal.—Dr. Orval M. Dickerson, Cairo, has been appointed a district health officer, his territory to include Alexander, Pulaski and Union counties.——Dr. William C. Dixon recently retired as health commissioner of Danville, after having served ten years.——Dr. W. Thomas Roberts, Metropolis, has been appointed health officer for Massac, Pope, Hardin and Johnson counties.——Dr. Harry O. Collins was elected health officer of Quincy, April 17, to succeed Dr. Thomas W. Rhodes, who has held the position for five and a half years.——Dr. Donald W. Tripodi has been appointed superintendent of the Livingston County Tuberculosis Sanatorium, Pontiac, succeeding Dr. John K. Shumate, who resigned to accept a similar position in the Pure Air Sanatorium near Bayfield, Wis.——Dr. John E. Reed, Benton, has been appointed division superintendent of public health; the primary work of the five men under his direction will be the eradication of malaria in southern Illinois.——Dr. John D. Foley has been appointed health officer of Waukegan, succeeding Dr. Howard C. Hoag, who held the position for eight years.

Chicago

Dr. Bundesen Appointed Health Commissioner.—Dr. Herman N. Bundesen, coroner of Cook County since 1928, was appointed health commissioner of Chicago by the newly elected mayor of Chicago, Anton J. Cermak. Dr. Bundesen held the position from 1922 to 1927.

Society News.—An exhibit of Osleriana was on display in the library of the University of Illinois College of Medicine during the month of April. It included the books written by Osler, books that Osler particularly admired, first edition of Cushing's life of Osler with an autographed photograph of Cushing, photographs of Sir William, and many letters written by him.——Drs. Michael Goldenburg, William F. Petersen and Samuel A. Levinson presented "A Glaucoma Study" before the Chicago Ophthalmological Society, April 20, and Dr. Peter C. Kronfeld, "Cyanosis Retinae."——Dr. Peter Bassoe addressed the Chicago Neurological Society, April 16, among others, on "The Klippel-Feil Malformation of the Neck."——The Chicago Council of Medical Women was addressed, May 1, by Dr. Ida M. F. Alexander, Lansing, Mich., on "Study in Normal Maternity," and Dr. Charlotte J. Calvert, Madison, Wis., "Wisconsin Maternal Mortality Study."——Dr. Henry K. Pancoast, Philadelphia, addressed a joint meeting of the Chicago Roentgen and Chicago Medical societies, April 22, on "Affections of the Upper Respiratory Tract," and Dr. Willis F. Manges, Philadelphia, "Foreign Bodies in the Air Passages, Both Opaque and Nonopaque."——Dr. Herman L. Kretschmer, among others, addressed the Chicago Urological Society, April 23, on "Recurrences Following Suprapubic Prostatectomy."——Dr. Samuel J. Fogelson spoke before the Chicago Society of Internal Medicine, April 27, among others, on "A Preparation to Be Used in Gastric Hyperacidity."——The Chicago Surgical Society was addressed, May 1, among others, by Dr. Percival Bailey on "Neuralgias of the Cranial Nerves."——Dr. Charles M. Jacobs, among others, addressed the Chicago Orthopedic Club, May 8, on "Boehler Treatment of Fractures."——Drs. Chester C. Guy and George L. Rand, among others, addressed the Chicago Pathological Society, May 11, on "Congenital Diaphragmatic Hernia Associated with an Accessory Lung."——Karl F. Meyer, Ph.D., of the Hooper Foundation for Medical Research, San Francisco, addressed the Bacteriology Club of the University of Chicago, May 8, on "Undulant Fever."

Dedication of Lying-In Hospital.—The new $1,900,000 Lying-In Hospital at the University of Chicago was dedicated, April 29. Mrs. Charles H. Swift and Mrs. Harry B. Kempner presented the hospital and the Mothers' Aid Pavilion,



respectively, to the board of directors in behalf of the donors, after which Mrs. Kellogg Fairbank, president of the board, who presided at the ceremonies, presented the teaching and research facilities of the hospital to the university. The building, which has a capacity of 157 beds, contains eight delivery rooms, an amphitheater, a room equipped for making motion pictures, nine waiting rooms, and a "fathers' room." In each birth room is a clock that ticks every fifteen seconds, so that the physician may time the unborn infant's heart beats without using a watch. Bright colors are used throughout most of the hospital. Radios are available for patients who desire them. Dr. Joseph B. DeLee, who will continue as chief of staff, speaking at the dedication, traced the history of the institution from its beginning in 1894, when he organized a clinic for women in a four room flat near Hull House. Dr. John Whitridge Williams, Baltimore, guest speaker, compared the institution with the first maternity ward in history, a Paris cellar in the thirteenth century. The university will provide the attending staff of the new hospital, which will be under the supervision of Drs. DeLee and Fred L. Adair, professors of obstetrics and gynecology in the school of medicine. The four divisions within the hospital itself are the Main Building; the Max Epstein Clinic, a one story wing; the Mothers' Aid Pavilion, which occupies the corner of Fifty-Ninth Street and Drexel Avenue, and the School Section adjoining the Mothers' Aid Pavilion. On a walk connecting the Epstein Clinic and the pavilion are carved eight escutcheons, seven of which bear the names of men who have made noteworthy contributions to obstetrics. The eighth is to be engraved with the name of the man who discovers the cause of eclampsia.

INDIANA

Dr. Tillotson Honored.—Dr. Alvin G. Tillotson, Michigan City, was honored by the La Porte County Medical Society, April 16, his eighty-fourth birthday. Sixty-three guests from various other county societies of Indiana, Michigan and Illinois were present. Dr. Harvey H. Martin, LaPorte, reviewed the changes in medicine that have taken place in Dr. Tillotson's lifetime. Dr. Gilbert Fitzpatrick, Chicago, the guest speaker, discussed cancer and showed the Canti cancer film.

Society News.—Dr. Isador S. Trostler, Chicago, addressed the La Porte County Medical Society, March 26, on "Roentgenotherapy of Nonmalignant Disease."——Dr. E. Otis Smith, Cincinnati, addressed the Dearborn-Ohio Counties Medical Society at Aurora, March 26, on "Urologic Problems Common to General Practice."——Dr. Alonzo B. Brower, Dayton, Ohio, addressed the Wayne-Union Counties Medical Society at Richmond, March 12, on "Recent Studies in Anemias."——The Grant County Medical Society was addressed by Dr. Ezra Vernon Hahn, Indianapolis, on "Trigeminal Neuralgia," March 24, at Marion.——"X-Rays in Gastric and Intestinal Disorders" was the subject of Dr. Samuel A. Overstreet, Louisville, Ky., before the Floyd County Medical Society, April 10, at New Albany.——William G. Downs, Jr., D.D.S., New Haven, Conn., addressed the Vanderburgh County Medical Society at Evansville, March 10, on "A Newer View of Dental Diseases."——Dr. David S. Beilin, Chicago, addressed the Elkhart County Medical Association, March 5, on "Value of X-Rays in Abdominal Conditions."——Drs. Horace M. Banks and Morris C. Thomas, among others, addressed the Indianapolis Medical Society, April 21, on "Septicemia Associated with Hemopenia (Agranulocytosis)." Dr. Edmund Andrews, Chicago, addressed the society, May 5, on "Hepatogenous Cholecystitis." May 19, Drs. Henry O. Mertz and Frank W. Cregor will speak on "Nephrovisceral Fistulae" and "Some Observations in Congenital Syphilis," respectively.——Dr. Joseph Rubsam addressed the Cass County Medical Society at Logansport, April 23, on "Acute Leukemia," and Dr. John C. Bradfield, "Lymphatic Leukemia."——Dr. Harry A. Singer, Chicago, addressed the St. Joseph County Medical Society, April 23, on "The Form Fruste Type of Perforated Peptic Ulcer."——Dr. Joseph C Beck, Chicago, addressed the Tippecanoe County Medical Society, April 23, on "Neoplasms of the Head and Neck Observed in Personal Practice."——Dr. Claude D. Greene addressed the Owen County Medical Society at Spencer, April 12, on "Medical Economics as It Pertains to Owen County."——Dr. James O. Ritchey, Indianapolis, addressed the Carroll County Medical Society, April 10, on "Focal Infection."——The Gibson County Medical Society was addressed, April 13, by Dr. Garland D. Scott, Sullivan, on "Treatment of Fractures of Spine and Pelvis."

KENTUCKY

County Health Units.—Seven Kentucky counties have recently voted to establish full time county health units with the aid of the federal appropriation for health service in the states that suffered from the 1930 drought. In Fleming, Lewis, Clinton, Gallatin and Hancock counties, local authorities agreed to provide $500 each toward the expenses, the remainder to be met by state and federal funds. In Allen and Caldwell counties, it is reported that the counties furnished $1,000 each.

Personal.—Dr. James O. Nall, recently of Chicago, has been appointed college physician and instructor in hygiene at Murray State Teachers College, Murray, Ky., succeeding Dr. Willoughby Park Richardson, resigned. Dr. Nall, a native of Kentucky, was graduated from Washington University, St. Louis, in 1925.——Dr. Harold W. Sterling has resigned as director of the Madison County health service at Richmond. Dr. Francis W. Forge, Pikeville, field director for the state board of health, is acting director.——Dr. Joseph A. Stucky, Lexington, was elected president of the Fayette County Mental Hygiene Society, recently.——Dr. Robert H. MacLeod, health director of Lee County, resigned, May 1, to take a position as director of a mobile health unit in West Virginia, it is reported.——Dr. John D. Handley, Hodgenville, was appointed health officer of Larue County at a recent reorganization of the board of health.

Society News.—Dr. Gordon F. McKim, Cincinnati, addressed the Campbell-Kenton County Medical Society, May 7, on "Differential Diagnosis of Kidney Lesions," illustrated; Dr. John G. Renaker, Covington, will address the society, May 21, on "Early Diagnosis of Pulmonary Tuberculosis."——Dr. William D. Haggard, Nashville, Tenn., addressed a joint meeting of physicians from Logan, Warren, Todd and Christian counties as guests of the Logan County Medical Society,

at Russellville, April 8, on diagnosis of acute abdominal conditions.——Drs. Oval N. Bryan, Nashville, Tenn., and John H. Blackburn, Bowling Green, addressed the Christian County Medical Society, Hopkinsville, April 21, on undulant fever and surgical jaundice, respectively. —— Dr. Berton M. Brown, Hazard, addressed the Perry County Medical Society, April 13, on acute mastoiditis.——A symposium on latent syphilis will be presented before the Jefferson County Medical Society, Louisville, May 18, by Drs. Aura J. Miller, Clifton Brooks Willmott and Charles E. Gaupin. Dr. Frederick L. Koontz addressed the society, May 4, on basic principles in plastic surgery.——Dr. Virgil E. Simpson, Louisville, among others, addressed the Third District Medical Society, Bowling Green, April 15, on "Classification of the Nephritides."——Dr. James H. Thorpe addressed the Daviess County Medical Society, Owensboro, April 28, on "Ocular Manifestation of Systemic Disease."——Dr. John A. Snowden, Jr., was the speaker before the Clark County Medical Society, Winchester, March 20, on tularemia.——Drs. Augustus H. Lancaster, Knoxville, Tenn., and Pride E. Hale, Lynch, addressed the Harlan County Medical Society, Harlan, April 25, on "Skin Affections of the Feet" and "Artificial Feeding of Well Infants," respectively. Dr. Malcom D. Thompson, Louisville, addressed the society, March 28, on "Cancer of the Cervix."——Drs. William H. Mason, Murray, and Ernest V. Edwards, Mayfield, addressed the Four-County Medical Society (Fulton, Hickman, Graves and Calloway counties), April 28, on "Treatment of Varicose Veins by Injection" and "Allergy," respectively.——Dr. Van A. Stilley, Benton, addressed the West Kentucky Public Health Association, Murray, April 13, on control of typhoid.—— Dr. Alice N. Pickett, Louisville, among others, addressed the Kentucky Valley Public Health Association, Georgetown, March 25, on prenatal care.

MAINE

Society News.—A symposium in obstetrics was conducted before the Cumberland County Medical Society, April 3, by Drs. Theodore M. Stevens, Wallace W. Dyson, Roland B. Moore, Elton R. Blaisdell, and Adam P. Leighton, Jr., Portland. A clinic was held in the afternoon at the Maine General Hospital. —— The Hancock County Medical Society was addressed, April 15, at Ellsworth, by Drs. Royal G. Higgins, Bar Harbor, and George A. Neal, Southwest Harbor, on pyelitis and minor surgery, respectively.——At a meeting of the Penobscot County Medical Society, March 17, Dr. Charles S. Philbrick, Bangor, was elected an honorary member, having completed fifty years in the practice of medicine. Dr. Cadis Phipps, Boston, addressed the meeting on "Functional Ability of Certain Abnormal Hearts."——Dr. Isaac M. Webber, Portland, addressed the York County Medical Society at Biddeford, April 9, on "Common Types of Goiter."

State Medical Meeting at Portland, June 25-27.—The seventy-ninth annual session of the Maine Medical Association will be held at Portland, June 25-27, under the presidency of Dr. Charles B. Sylvester, Portland. Guest speakers will include Dr. Henry M. W. Gray, Montreal, Canada, "A Surgeon's Notion of the Colon as a Health Regulator"; Drs. Sidney D. Kramer, Boston, control of poliomyelitis; Edward Starr Judd, Rochester, Minn., President-Elect, American Medical Association, "The General Clinical and Surgical Aspects of Disease of the Biliary Tract"; Max Davis, Boston, "Modern Laboratory Methods for the Early Diagnosis of Pregnancy," and Maxwell E. MacDonald, Boston, "Head Injuries, Clinical Diagnosis of Various Degrees of Injury, Treatment and After-Effects." Guest speakers who will participate in a symposium on the treatment of cardiovascular disease, Saturday, are Drs. Thomas D. Jones, James M. Faulkner, Robert S. Palmer, Howard B. Sprague and Paul D. White, all of Boston. Twenty-five members will be presented with medals, commemorating fifty years' practice. At the annual banquet Dr. Sylvester will give his presidential address.

MARYLAND

State Medical Meeting and Election.—Dr. Eldridge E. Wolff, Cambridge, was elected president of the Medical and Chirurgical Faculty of Maryland at its annual meeting in Baltimore, April 28-29. Drs. John T. King, Jr., Baltimore, William T. Hammond, Easton, and Lewis K. Woodward, Westminster, were elected vice presidents; Dr. Walter Dent Wise, Baltimore, secretary, and Dr. Charles E. Brack, Baltimore, treasurer, reelected. These physicians will assume office Jan. 1, 1932. The Trimble lectures were delivered by Dr. Elias P. Lyon, dean, University of Minnesota Medical School, Minneapolis, on "Heredity and the Practice of Medicine," and Dr. Charles P. Emerson, dean and professor of medicine, Indiana University School of Medicine, Indianapolis, on "The Neuropsychoses, the Advancing Edge of Internal Medicine." Dr. Rowland delivered his presidential address on "Relation of the University Medical School to the Practice of Medicine in the State." Dr. Harry Friedenwald presented a portrait of the late Dr. Samuel T. Earle, Jr., to the faculty at its general meeting, Wednesday, and Dr. Alexius McGlannan presented the Stokes Memorial Fund of $4,000, which is to be used for lectureships or additions to the faculty library in honor of Dr. William R. Stokes, chief of the bureau of bacteriology, Baltimore City Health Department, who died of psittacosis in February, 1930. The commemorative volume of the centennial celebration of the library, which was observed at the annual meeting of the faculty last year, is now ready for delivery.

MICHIGAN

Physician Sentenced.—Dr. William K. Wright, formerly of Manistique, was sentenced, Nov. 19, 1930, to serve one year and one day in Leavenworth Penitentiary for violation of the Harrison Narcotic Act.

Personal.—Dr. William C. Ellet has been appointed city health officer of Benton Harbor, succeeding Dr. Edwin R. Taylor.——Dr. William J. Stapleton, Jr., has presented to the Wayne County Medical Society an original etching of Dr. William H. Welch, Baltimore, which is signed by the artist, Alfred Hutty, and autographed by Dr. Welch. The etching was made especially for the celebration of Dr. Welch's eightieth birthday in 1930.

Bills Introduced.—H. 608, to amend the chiropody practice act, proposes (1) to define a chiropodist as "one who examines, diagnoses, or treats medically, mechanically, surgically or by physiotherapy, the ailments of the human leg and foot" and (2) to permit a chiropodist to use the title "doctor" or "Dr.," provided he adds the word "chiropodist." S. 201, to amend the medical practice act, proposes that the board of registration and medicine may refuse to issue a certificate to any person guilty of grossly unprofessional and dishonest conduct, provided that such person has been first convicted of such unprofessional and dishonest conduct by a court of competent jurisdiction.

Legislature Honors Three Scientists.—Resolutions were adopted by the Michigan legislature, April 14, citing the accomplishments and contributions to medicine and chemistry of Dr. Frederick G. Novy, professor of bacteriology, University of Michigan Medical School, Ann Arbor, Moses Gomberg, Sc.D., professor of chemistry, University of Michigan, and Reuben L. Kahn, Sc.D., who devised the Kahn precipitation test. The ceremony was attended by Gov. Wilber M. Brucker, Henry Ford, the supreme court justices, and other state officials and many physicians. Governor Brucker, in opening the program, stated that the idea had been originated by Dr. James T. Upjohn, senator from Kalamazoo and chairman of the senate public health committee.

Society News.—At a joint meeting of the Wayne County Medical Society and the Detroit Bar Association, May 5, Dr. William J. Stapleton, Jr., Detroit, presented the "Preliminary Report of the Committee on Medicolegal Problems of the A. M. A."; Henry C. Walters, LL.B., Detroit, spoke on "The Doctor as the Lawyer Sees and Hears Him," and Dr. Louis J. Hirschman, Detroit, "The Doctor Looks at the Lawyer." —— Dr. Clarence S. Gorsline, Battle Creek, was elected president of the Michigan Association of Industrial Physicians and Surgeons, April 24; Dr. Clifford W. Brainard, Battle Creek, vice president, and Dr. Frank A. Poole, Lansing, secretary. —— Dr. Frank A. Poole, Lansing, addressed the Kalamazoo Academy of Medicine, April 21, on "Industrial Hygiene," and Dr. Carleton J. Marinus, Detroit, on "Ovarian Insufficiency." —— Dr. Donald C. Balfour, Rochester, Minn., addressed a joint meeting of the Bay, Genesee and Saginaw county medical societies, April 21, on "Organic Diseases of the Stomach."——Dr. Reed M. Nesbit, Ann Arbor, addressed the Hillsdale County Medical Society, April 21, on "Significance of Pus in the Urine."

MISSOURI

Fathers' and Sons' Dinner.—The Jackson County Medical Society held a Fathers' and Sons' Dinner, April 18, attended by about 100 members. Dr. Carl Herbert Bryant Schutz was chairman, and Dr. William L. McBride served as toastmaster. The society's active list includes in a membership of 476, fifteen fathers and sons; about fifteen of its members have sons practicing elsewhere or who are medical students or interns.

Dr. Frank I. Ridge, whose grandfather is said to have been the first licensed physician in Jackson County, was among the speakers. The dinner was concluded by a "playette" written and acted by the sons' committee entitled "Now and Then," depicting the many duties of a rural practitioner years ago and those of the specialists of today.

Fraudulent Magazine Solicitor.—Several physicians in St. Joseph were the victims in February of a scheme worked by a man who purported to be an agent for *Harpers Magazine*. His plan was to solicit subscriptions and to offer sets of books as premiums. The subscription blank called for the payment of $9.70 in ninety days. After the victim had signed the blank, the "agent," who called himself T. T. McLean, explained that if the subscriber cared to pay cash or by check there was a discount of $1. In some cases the victim wrote checks, which "McLean" cashed at a local bank the next day. Correspondence with the National Publishers Association indicated that this fraud had been worked on physicians in the Middle West for several months. It was reported in THE JOURNAL, Dec. 20, 1930, p. 1923. The impostor is said to have used a variety of names, including, in addition to McLean, McAllister, Dallas, Allerton and Dale.

NEBRASKA

Physicians Honored.—Dr. Benjamin F. Bailey, Lincoln, was the guest of honor at a banquet given by the Lancaster County Medical Society at the University Club, Lincoln, April 15, marking his fiftieth anniversary in the practice of medicine. Addresses were made by Drs. Sheldon E. Cook, Lincoln, Francis A. Long, Madison, Karl S. J. Hohlen, Lincoln, Harry E. Potter, Fairbury, and Albert R. Mitchell, Lincoln. Dr. Bailey was president of the Nebraska State Medical Association in 1923 and has been chairman of its legislative committee for many years. An informal dinner in his honor was given, April 7, by members of the staff of Green Gables Sanatorium, of which he is president and chief of staff. Dr. Z. L. Kay, McCook, who has practiced medicine for fifty-five years, was honored with a banquet given by the Red Willow County Medical Society, April 23.

Society News.—Dr. Harry J. Wertman, Milford, reported a case of acute anterior poliomyelitis before the Seward County Medical Society, February 20.——The Platte County Medical Society was addressed, March 10, by Drs. Louis E. and Charles F. Moon, Omaha, on proctology and gynecology, respectively. ——At the March 17 meeting of the Madison Five County Medical Society, Dr. and Mrs. George E. Charlton, Norfolk, were honor guests at a dinner which was attended by about 100 persons. Dr. Charlton has been transferred as superintendent to the Hastings State Hospital after fifteen years' service at the Norfolk State Hospital. Dr. Melvin S. Henderson, Rochester, Minn., addressed the meeting on fractures.—— Dr. Edward Stevenson, North Platte, addressed the Lincoln County Medical Society, February 12, on "Convulsions of Infancy and Early Childhood." —— Dr. Thomas L. Howard, Denver, addressed the Scottsbluff County Medical Society, February 12, on certain aspects of urology.——The Richardson County Medical Society was addressed, March 5, by Drs. Henry R. Miner and Charles L. Hustead, Falls City, on physiologic chemistry and infant feeding, respectively. —— Dr. Ray M. Balyeat, Oklahoma City, addressed the Lancaster County Medical Society, Lincoln, April 21, on hay-fever and asthma. Dr. Carl A. Dragstedt, Chicago, spoke before the society, March 17, on "Studies in Bone Physiology."——Dr. Donald J. Wilson, Omaha, addressed the Cheyenne-Kimball-Deuel Counties Medical Society, Kimball, April 10, on ringworm and eczema. Dr. Frank E. Palmer, Sterling, Colo., addressed the society, March 2, on tularemia, and Dr. Arthur L. Miller, state medicine.

NEW HAMPSHIRE

Society News.—The New Hampshire Surgical Club held its thirty-third semiannual clinical meeting, April 28, at Manchester. Dr. William Wayne Babcock, Philadelphia, conducted an operative clinic in the forenoon, demonstrating spinal anesthesia and delivered a paper in the afternoon on "Operative Treatment of More Difficult Types of Hernia."

Conference on Child Health.—At a conference called by Gov. John G. Winant, at the State House, Concord, April 30-May 1, to discuss community responsibility and cooperation for child health and protection, one session was devoted to medical service, another to education and training and a third to the handicapped. Dr. Kenneth D. Blackfan, Boston, addressed the first session on growth and development; Dr. James R. McCord, Atlanta, on prenatal and maternal care, and C. C. Carstens, Ph.D., New York, on the socially handicapped. Among speakers at the second session were Ernest R. Groves, Ph.D., Chapel Hill, N. C., on family and parent education, and J. Mace Andress, Ph.D., Newtonville, Mass., on the school child. Drs. Benjamin W. Baker, Laconia, and Ezra A. Jones, Manchester, were among those who addressed the final meeting, at which Dr. William DeKleine, Washington, D. C., presided. John H. Finley, LL.D., associate editor of the New York *Times*, presided at the first two sessions.

NEW YORK

New York City

Eighth Harvey Lecture.—Dr. Frederick P. Gay, professor of bacteriology, College of Physicians and Surgeons, Columbia University, will deliver the eighth lecture of the Harvey Society, May 21, on "Tissue Resistance and Immunity."

Personal.—Dr. Simon Flexner, director of the department of laboratories, Rockefeller Institute for Medical Research, was recently elected a corresponding member of the French Academy of Sciences in the section on medicine and surgery, replacing Dr. Charles Nicolle, director of the Pasteur Institute in Tunisia.——The honorary degree of doctor of laws was conferred on Dr. Florence Rena Sabin, of the staff of Rockefeller Institute, in company with Mrs. Herbert Hoover, by Goucher College, Baltimore, April 24, at a ceremony at which David Allan Robertson, Ph.D., formerly assistant director of the American Council on Education, Washington, D. C., was inducted as president of the college. Dr. Sabin received the honor in recognition of her studies on blood cells.

Graduate Course in General Medicine.—A six weeks' course in general medicine for qualified graduates was begun May 11, at St. Luke's Hospital under the joint auspices of the College of Physicians and Surgeons and the department of university extension of Columbia University. Among the instructors are Drs. Lewis F. Frissell and Henry S. Patterson, in bedside diagnosis; Francis Carter Wood, physical therapy; John J. Homan Keating and Waldo B. Farnum, cardiology; William S. Thomas, allergy; Alfred Wiener, ophthalmology; roentgen ray diagnosis, Eric J. Ryan; Frank Elmer Johnson, pediatrics, and William B. Long, dermatology. The object of the course is to give the practicing physician a review of general medicine with instruction in recent methods of diagnosis and treatment.

Five-Year Campaign for Health Examinations.—The five county medical societies in New York, at a special meeting at the Academy of Medicine, April 27, launched a five-year campaign to promote health examinations. Through a special committee, of which Dr. Abraham J. Rongy is chairman, known as the Greater New York Committee on Health Examinations, the following program was presented: (1) The committee will offer facilities to physicians to increase their knowledge of health examinations and to apply it in office practice; (2) it will review medical curriculums with the aim of encouraging emphasis on preventive medicine and particularly the health examination idea; (3) it will study the health examination now rendered by various agencies and endeavor to formulate an acceptable standard procedure; (4) sustained propaganda will be directed toward winning over the general practitioner to an appreciation of the health examination in general practice, and (5) continuous education of the public will be carried on through the press, the radio, lectures and motion pictures. Speakers at the meeting were Drs. Rongy, Charles G. Heyd, Samuel W. Lambert, Linsly R. Williams, Willard C. Rappleye and John W. Withers, Ph.D.

Academy of Medicine Considers Birth Control.—Recommendations that the medical profession assume the guidance of the public on the matter of contraceptive advice are contained in a recent report of the public health relations committee of the New York Academy of Medicine. The report, which was adopted by the academy, recommends that more contraceptive clinics be established as integral parts of dispensary and hospital service and that unattached or extramural clinics be supported by the medical profession only until a sufficient number of hospital clinics have been developed to meet the public health demand. A movement should be begun, in the opinion of the committee, to include in the curriculums of medical schools instructions in contraceptive measures and in the indications therefor. The committee points out that contraceptive clinics offer important opportunities for the detection of disease. Laceration, erosions and displacements, calling for treatment or operation, are frequently overlooked. For this reason it is imperative that such clinics be under adequate medical supervision and should be regularly inspected by experienced gynecologists and obstetricians. When extramural clinics are temporarily justified, they should have a competent

medical personnel, should be subject to rules and regulations concerning indications for contraceptive advice, and should be regularly inspected to insure the observance of these rules.

NORTH CAROLINA

Dr. Jacocks to Return.—Dr. William Picard Jacocks, formerly of North Carolina and recently engaged in medical service in India under the Rockefeller Foundation, is reported to have accepted an appointment as state health officer to succeed the late Dr. Charles O'Hagan Laughinghouse. Dr. Jacocks was graduated from the University of Pennsylvania School of Medicine in 1911.

State Medical Meeting and Election.—At the seventy-eighth annual session of the Medical Society of the State of North Carolina, April 20-22, in Durham, the guest speakers included Drs. John B. Deaver, Philadelphia, on "Residual Conditions Following Operation on the Biliary Tract"; Pascal Brooke Bland, Philadelphia; Thomas R. Brown, Baltimore, "Various Forms of Colitis, Their Etiology, Diagnosis and Treatment"; Edgar A. Hines, Seneca, S. C., "Brief Pediatric Reminiscences and Probable Trends," and Walter Clarke, New York, "Congenital Syphilis." Dr. Morris Fishbein, editor of THE JOURNAL, addressed the house of delegates on "The Work of the American Medical Association," and a general meeting on "Current Trends in Medical Practice." Dr. Fishbein also spoke in Greensboro and Goldsboro following the meeting and addressed the North Carolina Public Health Association, which held its twenty-first annual meeting, April 20. Dr. Martin L. Stevens, Asheville, was installed as president of the Medical Society of the State of North Carolina for the ensuing year, and Dr. John B. Wright, Raleigh, was made president-elect. The next annual meeting will be held in Winston-Salem, April 18-20, 1932. The Moore County Medical Society Medal was presented to Drs. Claiborne T. Smith and William Bernard Kinlaw, Rocky Mount, for their paper on "The Clinical Consideration of an Anemia of Pregnancy and the Puerperium."

OHIO

Personal.—Dr. George W. Crile was one of two persons who received the Cleveland Medal of Public Service awarded by the chamber of commerce, April 21. Dr. Crile's citation referred to his achievements as surgeon and investigator.——Dr. Dempsey L. Travis, aged 76, resigned, April 18, after forty-four years' service as physician to the Cleveland fire department.——Dr. Herbert F. Gammons, superintendent of the Niagara Sanatorium, Lockport, N. Y., has been appointed superintendent of the new Lorain County Tuberculosis Sanatorium at Elyria; he will take charge, June 15.——Dr. Rudolph A. Rulmann, Minster, was the guest of honor at a banquet, April 20, given by physicians of Auglaize in celebration of his having completed fifty years of medical practice. Dr. Harry S. Noble, St. Marys, made the principal address.

Society News.—Dr. Curtis C. Mechling, Pittsburgh, addressed the Trumbull County Medical Society, April 16, on "Mucous Colic and Spastic Colon."——Drs. David A. Tucker, Jr., and Cecil Striker addressed the Cincinnati Academy of Medicine, April 20, on insulin. Dr. Charles P. Emerson, Indianapolis, addressed the academy, April 6, on "Neurasthenia —the Internist's Most Difficult Problem."——Dr. Marion A. Blankenhorn, Cleveland, spoke before the Lake County Medical Society, March 24, on "Hospital Treatment of Lobar Pneumonia."——Dr. Frederick G. Dyas, Chicago, addressed the Summit County Medical Society, Akron, May 5, on hyperthyroidism.——Dr. Gordon B. New, Rochester, Minn., addressed the Cincinnati Otolaryngological Society, April 21, on "Chronic Inflammation of the Salivary Glands."——Dr. Werner W. Duemling, Fort Wayne, Ind., discussed diseases of the skin at the meeting, April 2, of the Van Wert County Medical Society, Van Wert.——Dr. George T. Pack, New York, addressed the Columbus Academy of Medicine, April 3, on cancer of the breast.——At the quarterly meeting of the Union Medical Association of the sixth councilor district, Ashland, April 8, speakers were Drs. George W. Crile, Cleveland, on "Peptic Ulcer and Neurocirculatory Asthenia"; Herbert A. Wildman, Wooster, "Diagnostic Problems of Influenza"; Benjamin R. McClellan, Xenia, "Practical Points in Gallbladder Disease," and Courtland B. Meuser, Ashland, infantile paralysis. ——A symposium on bronchial asthma comprised the program of the Academy of Medicine of Toledo and Lucas County, April 17, with speakers as follows: Drs. Karl D. Figley, Bernard S. Steinberg, Claude E. Price and Samuel H. Patterson.——Dr. Clifford J. Straehley, Cincinnati, among others, addressed the Adams County Medical Society, West Union, April 22, on "Common Heart Diseases."

PENNSYLVANIA

Personal.—Dr. Edward C. Lewis, Verona, was given a dinner, March 10, by the people of Verona, in honor of his completion of fifty years in the practice of medicine. Before coming to Verona, Dr. Lewis had practiced fourteen years in Penfield.——Dr. Edgar S. Buyers, councilor for the second district, was the guest of honor at a testimonial dinner, April 22, given by the Montgomery County Medical Society, at Norristown.——Dr. Edwin M. McKay, Charleroi, was recently made medical director of Washington County to succeed Dr. William D. Martin, Washington.——Dr. Harvey T. Wickert, Emaus, recently observed the fifty-fifth anniversary of his medical practice.

Bills Introduced.—H. 1932, to amend the dental practice act, proposes to make it unlawful for licensed dentists to use advertising solicitors or free publicity press agents or to circulate or advertise (1) statements of a character tending to deceive or mislead the public, (2) statements of professional superiority, (3) offers to perform professional service at definite fixed prices when the nature of the professional services rendered and the materials required must be variable, and (4) to display by means of glaring, illuminated, or flickering light signs any advertisement containing as a part thereof the representation of a tooth, teeth, bridge work or any portion of the human head. H. 1931, to amend the workmen's compensation act, proposes that, in addition to the surgical, medical and hospital treatment that an employer must render an injured employee, the employer shall during the first ninety days following any accident furnish reasonable dental services and supplies as and when needed as a result of the industrial accident, at a cost not to exceed $100.

SOUTH CAROLINA

Society News.—Dr. Kenneth M. Lynch, Charleston, addressed the Anderson County Medical Society, Anderson, March 11, on "Intestinal Amebiasis."——Rear Admiral Charles E. Riggs, surgeon general of the U. S. Navy, addressed the Medical Society of South Carolina, Charleston, March 24, on the activities of the navy's medical department.——A detailed study of pellagra and its prevention is to be made in South Carolina by the U. S. Public Health Service under the direction of Dr. Charles V. Akin, Jr., recently director of rural sanitation in Louisiana.——Dr. Charles A. Mobley, Orangeburg, addressed the Columbia Medical Society, April 13, on purpura hemorrhagica.——Dr. Julian D. Hart, Durham, N. C., addressed the Florence County Medical Society, Florence, April 1, on skin grafting.——Dr. Leonard K. Philpot, Columbia, celebrated his fifty-sixth anniversary in the medical profession, March 4.——Dr. William K. Fishburne, Moncks Corner, has been appointed health officer of Berkeley County.

TEXAS

Personal.—Dr. Joseph D. Becton, Greenville, was appointed the twelfth member of the state board of medical examiners under a bill just passed by the legislature increasing the personnel of the board from eleven to twelve members.——Dr. Elva A. Wright, Houston, was recently elected president of the Texas Tuberculosis Association.

State Medical Election.—Dr. John O. McReynolds, Dallas, was installed as president, and Dr. John H. Foster, Houston, made president elect of the State Medical Association of Texas at its recent annual meeting. Drs. Charles H. Harris, Fort Worth, Abb C. DeLong, San Angelo, and John W. Torbett, Marlin, were elected vice presidents, and Dr. Holman Taylor, Fort Worth, secretary, reelected. The next annual meeting of the association will be held at Amarillo.

Health Service for Drought Area.—Preventive health service under the recent federal appropriation for the aid of drought-stricken areas was to begin, May 1, in the district including Wichita, Archer, Clay, Jack and Young counties, to continue for eight months or longer if needed. A sanitary inspector and a public health nurse were sent to the district, and smallpox vaccine, typhoid serum and diphtheria toxoid are to be provided for children of indigent families. A local committee with County Judge Johns P. Marrs as chairman is cooperating with state and local health authorities in the administration of the service. Drs. Monroe A. Beckmann and Orman T. Kimbrough, Wichita Falls, are members of the committee.

Health at San Antonio.—Telegraphic returns from eighty-one cities with a total population of 36 million to the U. S. Department of Commerce, for the week ended April 25, indi-

cate that the highest mortality rate (19.1) appears for San Antonio, and the rate for the group of cities as a whole, 12.3. The rate for San Antonio for the corresponding period last year was 17.7, and for the group of cities, 13.4. The annual rate for eighty-one cities for the seventeen weeks of 1931 was 13.8, as against a rate of 13.3 for the corresponding weeks of 1930. Caution should be used in the interpretation of weekly figures, as they fluctuate widely. The fact that some cities are hospital centers for large areas outside the city limits, or that they have a large Negro population, may tend to increase the death rate.

WEST VIRGINIA

Society News.—Dr. George W. Crile, Cleveland, addressed the Ohio County Medical Society, Wheeling, April 10, on "Treatment of Peptic Ulcer and Neurocirculatory Asthenia." Dr. William A. Frontz, Baltimore, addressed the society, May 1, on "Hematuria, with Special Reference to the Importance of Early Diagnosis of the Conditions Causing It."——Dr. John Bankhead Banks, Charleston, among others, addressed the Lewis County Medical Society, Weston, April 14, on treatment of empyema, with especial reference to closed drainage.——Dr. Douglas Vanderhoof, Richmond, Va., made an address on "Chronic Diarrhea in Adults" before the Kanawha County Medical Society, Charleston, April 7.

GENERAL

Increase in Automobile Fatalities.—Eighty-one large cities in the United States reported to the U. S. Department of Commerce, during the four weeks ended April 18, 669 deaths from automobile accidents as compared with 625 during the corresponding period last year. For the fifty-two week periods ended April 18, 1931, and April 19, 1930, the totals for the eighty-one cities were 9,000 and 8,803, respectively, which indicate a recent rate of 25.8 per hundred thousand of population as against an earlier rate of 25.7. Six cities reported no deaths from automobile accidents for the last four weeks: Duluth, Minn., Fall River, Mass., Grand Rapids, Mich., and Lynn, New Bedford and Springfield, Mass.

Society News.—Dr. Theodore B. Beatty, Salt Lake City, was elected president of the Conference of State and Provincial Health Authorities of North America, April 29; Dr. William J. Bell, Toronto, Ontario, Canada, vice president, and Dr. Albert J. Chesley, St. Paul, Minn., secretary, reelected.——Dr. Carl Dudley Camp, Ann Arbor, Mich., was elected president of the Northern Tri-State Medical Association (Michigan, Ohio and Indiana) at its meeting at Ann Arbor, April 14, and Dr. Edward B. Pedlow, Lima, Ohio, secretary, reelected. The next meeting will be in Toledo, Ohio.——The annual meeting of the Medical Library Association will be held in the New Hutchinson Memorial, Tulane University of Louisiana School of Medicine, New Orleans, May 19-21. The speakers will include Drs. Charles C. Bass, dean and professor of experimental medicine at Tulane; Emmett L. Irwin, New Orleans, Archibald Malloch, New York, Rudolph Matas, New Orleans, and Fayette C. Ewing, Alexandria, whose subject will be "Thoughts on the History of Medical Art."

Survey of Eugenics Movement.—A comprehensive survey of the eugenics movement in the United States is presented in "Organized Eugenics," a recent publication of the American Eugenics Society. This society functions through sixteen standing committees, including committees on eugenics and dysgenics of birth regulation, crime prevention, biologic genealogy, immigration, popular education, research and cooperation with physicians. The last-named committee, of which Dr. Stuart Mudd, Villanova, Pa., is chairman, recommends the inclusion of instruction in genetics and its eugenic considerations in the curriculums of all colleges and universities, especially in premedical education; instruction in the technic of contraception in all medical schools; establishment of clinics for instruction in contraception to patients of the dispensary type, under expert medical supervision; and, finally, it urges members of all professions to inform themselves on eugenics that they may aid in the passage of sound eugenic legislation. The report further sets forth the history of this movement in England and lists the organizations in the United States whose programs are wholly or partly devoted to the promotion of eugenics.

CANAL ZONE

Society News.—At the annual election of officers of the Medical Association of the Isthmian Canal Zone, recently, Dr. Raymond O. Dart, Ancon, was elected president; Dr. John R. Hall, Corozal, vice president, and Dr. Lawrence Getz, Panama, secretary.

FOREIGN

Personal.—Dr. Daniel Fowler Cappell, lecturer in pathologic histology in the University of Glasgow, Scotland, has been appointed professor of pathology at St. Andrews University, Aberdeen.——Prof. W. Blair Bell, director of the Liverpool Medical (Cancer) Research Organization, has resigned the chair of midwifery and gynecology at the University of Liverpool, which he had held since 1921.

Name of Medical Journal Changed.—The *British Journal of Actinotherapy and Physiotherapy*, 17, Featherstone Buildings, London, W. C. 1, will in the future be published under the title the *British Journal of Physical Medicine*. The change was made to indicate more clearly the subjects covered by the journal; namely, actinotherapy, heliotherapy, electrotherapy, radiotherapy, hydrotherapy, climatotherapy, thalassotherapy, manipulative surgery, massage and exercise. Subscription rates will remain the same.

New Journal on Nutrition.—The first issue of *Nutrition: Annales cliniques, biologiques, thérapeutiques* has just appeared. It is published in Paris by G. Doin & Cie under the scientific direction of P. Carnot, M. Loeper and M. Villaret of the Faculty of Medicine of Paris and is edited by R. Glénard and Mathieu de Fossey. The present issue is devoted to articles on diabetes and hyperglycemia by Drs. M. Labbé, P. Mauriac, E. Aubertin, E. Chabrol, F. Rathery, Haller and F. and G. Verdeau. Short abstracts of the original articles are given in German, English and Spanish.

New Journal on Tuberculosis.—The first issue of *Revista de la Tuberculosis del Uruguay* appeared in January. The journal is the official organ of the Society of Phthisiology of Uruguay, which has in charge the crusade against tuberculosis in that country. Dr. F. D. Gomez is the editor of the *Revista* and Dr. H. Franchi, the assistant editor. Drs. J. G. Otero, A. Sarno, E. Stirling, M. Landeira and E. Tarigo (the board of directors of the Society of Phthisiology) are collaborators. Papers presented before the society will be published and each issue will also contain a section devoted to abstracts of articles on tuberculosis which have appeared in Spanish-speaking countries.

Society News.—Dr. A. Cawadias gave an address in memory of Dr. Jamieson B. Hurry on "The Dynamic and the Modern Procedure of Diagnosis" before the Osler Club, February 13.——Prof. Edward Mellanby, professor of pharmacology, University of Sheffield, delivered the Sir Charles Hastings Lecture for 1931 at the British Medical Association House, London, March 13, on "Diet and Health."——The sixth International Congress of Military Medicine and Pharmacy will be held at The Hague, Netherlands, June 15-20. Questions to be considered are: training of military physicians and pharmacists, psychoneuroses of war, methods of hemostasis on the battlefield, preparation and care of medicines and effects of war wounds on the teeth and lower jaw. The bureau of information, 3 Surinamestraat, The Hague, will furnish details.——The Harveian Society of London will celebrate its centenary, June 11-13. At a meeting, June 11, at St. Bartholomew's Hospital, Dr. Raymond Crawford will deliver an oration, and an exhibition of Harvey relics will be shown. The following day the Buckston Browne dinner will be given with Prince Arthur of Connaught as the principal guest. On June 13 there will be a pilgrimage to Hempstead Church, Essex, where Harvey is buried. On the return trip the party will stop at Rolls Park, Chigwell, where Harvey once lived, for tea and an address by Sir D'Arcy Power on Harvey's connection with the place.——The International League Against Rheumatism will meet, May 19-24, in Rome; subjects to be discussed include early symptoms of chronic rheumatism, rheumatic diseases and tuberculosis and rheumatic diseases and occupation.——Lord Dawson of Penn was elected president of the Royal College of Physicians of London in March.

CORRECTIONS

Neurosine Poisoning.—In the clinical note by Dr. G. Greswell Burns (THE JOURNAL, April 11, p. 1225), the metric equivalent for the 8 ounce bottle should have been 235 cc.

The Vertex Occipitoposterior Position.—In the article by Dr. Samuel M. Dodek, this issue, the term "ascending ramus of the ischium," in the fourth line of page 1663, should be "descending ramus of the pubic bone."

Burnt Alum.—Dr. William L. Gould writes that in his article on "Ringworm of the Feet," in THE JOURNAL, April 18, page 1300, through a typographic error the term "burnt elm" was used when it should have been the term "burnt alum."

Foreign Letters

LONDON

(From Our Regular Correspondent)

April 18, 1931.

Milk-Borne Epidemics Due to Streptococci

Two types of infection, now known to be due to streptococci, have been shown to be spread by milk—scarlet fever and sore throat. It was at first taught that the outbreaks of scarlet fever, traced to diseased cows, were due to a bovine form of the malady. But in 1912 Dr. W. G. Savage, an authority on food poisoning, came to the conclusion that bovine scarlet fever did not exist as a constitutional disease and that the cow acted simply as a passive carrier of the streptococcus. In a paper read before the Royal Society of Medicine, he pointed out that sixteen years later his theory was confirmed by the investigations of F. S. Jones and R. B. Little in New Jersey. They found human cases of scarlet fever on a farm the milk from which produced an outbreak of the disease in a small town. One cow had an injured teat and showed mastitis with abundant hemolytic streptococci of human type. With this streptococcus it was possible to infect other quarters of this cow and also another cow and set up severe mastitis. The organism also proved to be indistinguishable culturally and as regards certain antigenic affinities from *Streptococcus scarlatinae*.

With regard to milk-borne sore throat, many outbreaks were recorded in Great Britain from 1890 to 1910, but since that year only one (at Hove last year). In an outbreak at Colchester there were over 600 cases and Dr. Savage traced the great majority to a cow suffering from streptococcal mastitis. On the discontinuance of the use of its milk the outbreak at once ceased. On the other hand, in the United States no outbreaks were reported till 1911, but since then a large number have been recorded. Most of the extensive outbreaks were associated with an infective cow, but human infection is given as a cause in a number. Scamman found that in forty-five outbreaks 55 per cent were attributed to a milk handler and 30 per cent to a diseased cow and a milk handler.

During 1906-1909, Dr. Savage made a long series of comparative experiments with the streptococcus of bovine mastitis (which he called *Streptococcus mastitidis*), the cause of 68 per cent of his cases, and pathogenic human types, and satisfied himself that the former was not a cause of human disease. This would explain the fact that, while bovine mastitis is common, its association with human sore throat is rare. Therefore in 1911 he formulated the view that bovine udder and teat lesions are usually harmless to man, but occasionally, either as a superadded infection or as a primary one, a local infection with human organisms takes place and there is danger to man. In other words, the cow is potentially pathogenic to man only when it acts as an active or passive carrier of organisms of human origin. Work done since that date, mainly in America, confirms this view. In the Chicago outbreak of sore throat in December, 1911, D. J. Davis found that the hemolytic streptococci responsible differed from those of bovine mastitis. Davis and Capps have shown that hemolytic streptococci of human origin can cause mastitis in cows when introduced into the udder by the catheter. When they were smeared on the surface of uninjured teats, the results were negative; but when the teats were slightly abraded, mastitis resulted. In the discussion that followed, a number of health officers and veterinarians joined and there was general agreement with Dr. Savage's view.

The Evils of Medical Socialism

In the house of commons the minister of health, Mr. Greenwood, in opening the debate on the vote for the expenses of his department, said that the increased expenditure on sickness and disablement benefit was causing concern. It was difficult to assess the various factors causing the increase. He was not satisfied that there had been any substantial deterioration in the general health. It was important that every insured person should go to the physician in the early stages of illness and take full advantage of his rights. But behind all legitimate causes every one associated with approved society work knew that there was a certain amount of laxity. The government was issuing to the societies memoranda which he hoped would be of assistance in certification and the supervision of claims for benefit. A commentary on the minister's rather guarded reference to "a certain laxity" is furnished by the fact that the ministry of health has found it necessary to issue new regulations rendering the transfer of an insured person from the list of one panel physician to that of another more difficult. Before, all that was necessary was to give a fortnight's notice to the insurance committee. Now the insured must obtain the consent of his present physician and also of the one to whom he desires to be transferred. Or, if he does not wish to do that, he must give a month's notice to the committee, and the transfer can then be made at the end of the quarter. What led a labor minister to curtail the liberty of the insured was complaints from the friendly societies of excessive sickness claims resulting from patients obtaining certificates from a physician to whom they transferred after refusal from their previous one. Here, then, is the demonstration of the failure of socialism in medicine as in all other forms, and incidentally of its impairment of liberty. "Free choice of physician" was one of the slogans with which the insurance act was ushered in by Lloyd George and it of course exists in other medical practice, but it works wastefully under socialism.

MATERNAL MORTALITY

The problem of maternal mortality, said the minister, was a serious one. They could not attempt to justify the deaths of 3,000 mothers a year in the existing state of knowledge. Maternity was by far the most dangerous occupation of the country. His predecessor, Mr. Chamberlain, examined these deaths three years ago after the report of a committee and found that at least one half of the deaths were preventable. That was a national scandal. Mr. Greenwood sent a circular to the local authorities pointing out the ways in which they might cooperate. The result was that they were establishing or extending antenatal clinics, providing private physicians for antenatal examinations, improving the supply of midwives, arranging consultant services, and providing extended hospital accommodation.

The Government and Birth Control

In a memorandum addressed to maternity and child welfare authorities, the minister of health states that the government has had under consideration the question of the use of institutions controlled by local authorities for the purpose of giving advice to women on contraceptive methods. So far as maternity and child welfare centers (including antenatal centers) were concerned, these centers could deal only with expectant mothers, nursing mothers and young children. The government's view was that it is not a function of the centers to give advice in regard to birth control and that their use for such a purpose would be likely to damage the proper work of the centers. But when there are medical grounds for giving advice to married women on contraceptive methods in attendance at the centers, it may be given but should be limited to cases in which further pregnancy would be detrimental to health and should be given at a separate session and under conditions such as will not disturb the normal primary work of the center. The minister therefore is unable to sanction any proposal for the use of these centers for giving birth control advice in other cases. The government is advised that the local authorities have no general power to establish birth control clinics as such but that the powers of the local authorities for the care of expectant and

nursing mothers enable them to provide birth control clinics for the limited class described. Because of the acute division of public opinion on the subject of birth control, the government has decided that no departmental sanction which may be necessary to the establishment of such clinics for nursing mothers shall be given except on condition that contraceptive advice be given only in cases in which further pregnancy would be detrimental to health.

British Congress of Obstetrics and Gynecology

The eighth British Congress of Obstetrics and Gynecology will be held in Glasgow, April 22 to 24, by invitation of the Glasgow Obstetrical and Gynecological Society. The congress is organized under the auspices of the following societies: Section of Obstetrics and Gynecology, Royal Society of Medicine; Edinburgh Obstetrical Society; North of England Obstetrical and Gynecological Society; Glasgow Obstetrical and Gynaecological Society; Ulster Medical Society; Section of Obstetrics and Gynecology, and Royal Academy of Medicine in Ireland. The first day will be devoted to the clinical and pathologic features of ovarian tumors. The discussion will be introduced by Prof. Blair Bell followed by Prof. Beckwith Whitehouse from the clinical side and Mr. T. G. Stevens from the pathologic. Prof. S. A. Gammeltoft will read a paper on the teaching of obstetrics and gynecology as practiced at the University of Copenhagen; Prof. H. Guggisberg of Berne, on conditions of life and reproduction. A special museum is being organized for the congress. On the Saturday following the congress an interesting function will take place. The obstetric societies of Edinburgh and Glasgow have undertaken the renovation of the tomb of Smellie at Lanark and will unveil a new memorial in the cemetery.

PARIS

(From Our Regular Correspondent)

April 12, 1931.

Postgraduate Work in Paris

The A. D. R. M., or Association pour le développement des relations médicales, is an organization created by the Faculté de médecine for the express purpose of supplying information and arranging postgraduuate courses for foreign physicians. A few of these courses are given in English.

Postgraduate Work in Paris During 1931

MEDICINE

1. Diseases of the Lung with X-Ray Projections and Anatomic Specimens and Demonstrations (ten lectures).—July 6 to July 11. Fees, 500 francs ($20). Professor Sergent and associates. Hôpital de la Charité, 47, Rue Jacob, Paris.
2. Diseases of the Liver and Nutritional Diseases.—September 7 to September 19. Fees, 250 francs ($10). Prof. P. Carnot and associates. Medical Clinic of the Hôtel-Dieu, 1, Place du Parvis, Notre Dame, Paris.
3. Diseases of the Digestive Tract.—September 21 to October 3. Fees, 250 francs ($10). Professor P. Carnot and associates. Medical Clinic of the Hôtel-Dieu, 1, Place du Parvis, Notre Dame, Paris.
4. Diseases of the Kidneys, and Nutritional and Blood Diseases.—October 1 to October 15. Fees not announced. Prof. C. Achard. Medical Clinic of the Hôpital Cochin, 47, Rue du Faubourg, Saint Jacques, Paris.
5. Tuberculosis.—June 15 to July 15 (approximate date). Fees, 250 Francs ($10). Prof. E. Sergent and associates. Hôpital de la Charité, 47, Rue Jacob, Paris.
6. Roentgen Diagnosis of Diseases of the Respiratory Tract. — First week of December. Fees, 250 francs ($10). Prof. E. Sergent and associates. Hôpital de la Charité, 47, Rue Jacob, Paris.
7. New Methods for Internal Pathology,—November 2 to November 7. Fees, 250 francs ($10). Prof. E. Sergent and associates. Hôpital de la Charité, 47, Rue Jacob, Paris.
8. Mental Diseases.—July 1 to July 13. Fees, 500 francs ($20). Prof. Henry Claude and associates. Asile Sainte-Anne, 1, Rue Cabanis, Paris.

SURGERY

1. Surgery of the Digestive Tract and Liver. — June 29 to July 4. Fees, 500 francs ($20). Prof. M. Antonin Gosset and associates. Surgical Clinic of the Salpêtrière, 47, Boulevard de l'Hôpital, Paris.
2. Biologic Problems and Therapeutics Concerning Cancer.—July 20 to July 26. Fees, 500 francs ($20). Prof. G. Roussy. Institut du Cancer de la Faculté de médecine de Paris.
3. Orthopedic Surgery and Tuberculosis of the Bones and Joints.—July 6 to July 11. Fees, 500 francs ($20). Dr. Etienne Sorrel. Hôpital Trousseau, 158, Avenue du Général Michel-Bizot, Paris.
4. Surgery of the Eye (in English).—July 1 to July 11. Fees, 500 francs ($20). Dr. Morax and associates. Amphithéâtre d'Anatomie des Hôpitaux, 17, Rue du Fer-à-Moulin, Paris.
5. Surgery of the Ear, Nose and Throat (in English).—June 29 to July 11. Fees, 500 francs ($20). Prof. F. Lemaitre and associates. Amphithéâtre d'Anatomie des Hôpitaux, 17, Rue du Fer-à-Moulin, Paris.
6. Biliary, Intestinal and Gynecologic Surgery.—Two courses during summer. Prof. B. Cunéo. Surgical Clinic of the Hotel Dieu.
7. Surgery of the Digestive Tract and Gynecologic Surgery.—June 11 to June 25. Fees, announced later. Prof. M. Gosset and associates. Surgical Clinic of the Salpêtrière, 47, Boulevard de l'Hôpital, Paris.
8. Clinical Radiology of the Digestive Apparatus.—October 12 to October 23. Fees, 250 francs ($10). Prof. P. Duval. Surgical and Therapeutic Clinic of the Hôpital de Vaugirard, 389 Rue de Vaugirard, Paris.
9. Urology.—July 6 to July 11. Fees, 500 francs ($20). Dr. Maurice Chevassu. Hôpital Cochin, Pavillon Albarran, 47, Faubourg Saint Jacques, Paris.

GYNECOLOGY AND OBSTETRICS

1. Surgery in Gynecology and Obstetrics (two courses).—June 22 to July 4 and November 30 to December 12. Fees, 250 francs ($10). Prof. J. L. Faure. Clinic of Gynecology of the Hôpital Broca, 111 Rue Broca, Paris.
2. Surgery in Gynecology and Obstetrics.—October 12 to October 24. Fees, 250 francs ($10). Profs. J. L. Faure and M. E. Douay. Clinic of Gynecology of the Hôpital Broca, 111 Rue Broca, Paris.
3. Pathologic Anatomy as Applied to Gynecology.—October 1 to October 14. Fees, 250 francs ($10). Prof. M. Bulliard. Clinic of Gynecology of the Hôpital Broca.
4. Obstetrics.—October 1 to October 31. Fees, 400 francs ($16). Prof. A. Couvelaire. Obstetric Clinic of the Maternité Baudelocque, 121 Boulevard de Port-Royal, Paris.

RADIOLOGY AND PHYSICAL THERAPY

1. Clinical Radiology.—July 20 to July 25. Fees, 500 francs ($20). Prof. R. Ledoux-Lebard. Hospice de la Salpêtrière, 47, Boulevard de l'Hôpital.
2. Medical Electrology.—July 6 to July 11. Fees, 500 francs ($20). Drs. Bourguignon, Delherm and Laquerrière and associates. Hôpital de la Pitié, 83 Boulevard de l'Hôpital, Paris 13 (Métro: Saint-Marcel).

PEDIATRICS

1. Pediatrics.—June 29 to July 11. Fees, 1,000 francs ($40). Dr. P. F. Armand-Delille and Dr. C. Lestocquoy. Hôpital Herold, Place du Danube, Paris (XIX).

For further information and registration, apply to the Association pour le developpement des relations médicales, Salle Béclard, Faculté de médecine, Paris (6).

Treatment and Prophylaxis of Ozena

Since Malherbe and Dujardin-Beaumetz have shown that the infective agent of ozena is the pseudodiphtheritic bacillus of Belfanti and Della Vedova, the treatment of the disease has been completely changed in France. Malherbe employed at first the antidiphtheritic serum of Roux and Martin. The results were good in some cases but there were untoward serum reactions. He used later, in cooperation with Dujardin-Beaumetz, a sterilized emulsified culture prepared at the Institut Pasteur of the paradiptheritic bacillus of Belfanti and Della Vedova, which he utilized as a vaccine. He has recently had still better results and more simply by employing the antidiphtheritic anatoxin of Ramon, which is being widely used for the prophylaxis of diphtheria. Malherbe considers that the definitive cure of ozena is today certain, irrespective of the age of the patient or the virulence of the disease, through injections of anatoxin. But if the disorder is of long standing, after it can be shown that the bacillus of Belfanti and Della Vedova has disappeared, the treatment in the form of a local antiseptic should be continued, in order to destroy the secondary infections, which are important factors in the perpetuation of the disease but which are not acted on by the anatoxin. Malherbe recommends the organization in the schools of an energetic prophylaxis against ozena by instituting a search in the nasal secretions of the pupils for the bacillus of Belfanti and

Della Vedova. This bacillus is present more frequently than is supposed, provoking for a long time only a chronic coryza before attacking the mucosa more profoundly in persons predisposed possibly by an endocrine insufficiency. Further reason for care is that ozena is contagious, not only as to children in the same school but among members of the same family. There are also germ carriers. Here, too, the use of the Ramon anatoxin will serve to sterilize dangerous subjects. The general adoption of antidiphtheritic vaccination in the schools by means of the Ramon anatoxin, which may become obligatory in France, will contribute without doubt indirectly to the eradication of ozena.

Research on Cancer

Many communications on cancer are presented in the learned societies but they deal chiefly with palliative effects or with the prevention of recurrences and not with formal cures. It is curious to note the present silence of advocates of radiotherapy. All research tends toward increasing the natural resistance of the organism. Delbet's school continues to recommend the use of halogen salts of magnesium. Blondel advocates the intramuscular injection of a solution of quinine sulphate and magnesium sulphate to arrest the neoplasm and to combat glandular metastases. Naamé and Hirsch and Arloing have employed opotherapeutic treatment by the use of thyroid, thymus, suprarenal cortical extract, mammary gland, and spleen. Cuvier and Carrière, basing their action on fifty favorable cases in man and in animals, use extracts of tumors. Colloidal copper is vaunted by de Nabias, who has taken up the old researches of Gaube du Gers; Fournier uses injections of lead fumarate. All these authors, although employing widely different remedies, report favorable results: retardation in the growth of the tumor, absence of recurrences after surgical removal, disappearance of swollen glands, and sometimes healing of the tumor itself without intervention. In fact, a great activity is observable in the treatment of cancer without the use of radium, experiments of all kinds being tried. Unfortunately, the statistics do not show that the mortality from cancer in France has diminished to any perceptible degree.

The Youngest Pneumothorax Patient

Blechmann, Kindberg and Cottenot presented recently before the Société de pédiatrie a patient on whom they had performed a pneumothorax for pulmonary tuberculosis and who is probably the youngest patient on whom the operation has been attempted. The patient was an infant, aged 5 months. The child had been infected by a tuberculous domestic who has since died and with whom he had been in contact for two months. The skin reaction to tuberculin was strongly positive, and roentgenographic examination revealed a lesion of the right lobe of the lung, with cavity formation. A pneumothorax was done and the symptoms improved rapidly. The fever and cough ceased; the appetite returned and the weight increased. Twelve successive insufflations were given, which were interrupted by a pleural effusion. Injections of ethereal oil according to the Marfan method were employed. The child is now 16½ months old and is in excellent health. The cavity is no longer in evidence. The roentgenogram shows that the cardiac shadow is drawn considerably toward the right and that the subclavicular area is a little more dense than at the left.

The Tomarkin Foundation at Locarno

The postgraduate medical center, created at Locarno through the generosity of Mr. Tomarkin of New York, gave last autumn a series of lectures that were a complete success. The spring session, from April 14-28, will bring together many eminent foreign scientists, including several Frenchmen. Professor Calmette will speak on preventive vaccination against tuberculosis with the B C G vaccine, and on the tuberculous virus and its filtrable elements. Professor Leriche of Strasbourg will speak on the surgery of pain and on the surgical treatment of angina pectoris. Professor Levaditi of the Institut Pasteur de Paris will deliver two lectures on the filtrable causative agents of neurotropic ectodermoses. Mr. Pasteur Vallery-Radot will speak on anaphylaxis in medicine and on the biologic tests of specific hypersensitiveness observed in the clinic. Professor Pautrier of Strasbourg will deal with: (1) the present conception of tuberculosis of the skin in its relations to general pathology; (2) the present treatment of tuberculosis of the skin; (3) the dermo-epidermic exchanges. Professor Regaud will treat of: (1) the radiophysiologic bases of the treatment of malignant tumors by roentgen rays and radium; (2) general survey of the present status of the results of radiotherapy as applied to malignant tumors; (3) rational basis of the crusade against cancer of the neck of the uterus. Professor Weinberg, of the Institut Pasteur de Paris, will speak on: (1) the rôle of anaerobic micro-organisms in the etiology of infectious diseases; (2) serotherapy in polyomicrobic infections.

An American Medical Journal in Paris

The American Hospital of Paris has begun the publication for France and foreign countries of a medical journal in English, the *American Medical Journal of Paris*. The purpose is to make known in English-speaking countries the scientific researches of French physicians. The first number contains articles by Professor Claude on the pathogenesis of epilepsy; Dr. Le Mée, postoperative syndrome of pallor and hyperemia in children; Dr. Armand Delille, bronchiectasis and congenital syphilis; Dr. Ravina, therapeutics of defective pelvis; Dr. Pierret, international cooperation in public health problems.

BERLIN

(From Our Regular Correspondent)

April 8, 1931.

Criteria for Therapeutics and for Performing Scientific Experiments on Man

Criteria have been proposed by the federal ministry of the interior, on the basis of suggestions of the federal health council, with reference to the conduct of physicians. These will, no doubt, be regarded in the future by the trial judge as establishing a trend or precedent. The essential content of these criteria is expressed in the following:

Medical science cannot renounce the right and privilege, in suitable cases, to try out therapeutic applications of new remedies and procedures that are not yet adequately tested. Nor can scientific experiments on human beings be entirely dispensed with, since otherwise progress in the recognition, cure and prevention of disorders would be retarded. In view of these rights accorded the physician, there rests on him the obligation of bearing in mind his grave responsibility for the life and health of every person whom he treats with new remedies or procedures or on whom he undertakes an experiment. By "new curative treatment," in the sense in which it is employed in these criteria, are meant interventions and modes of treatment applied to man, which serve curative treatment; that is to say, which are undertaken in a definite individual therapeutic case for the recognition, cure or prevention of disease or of a disorder or for the elimination of a physical defect, although their effects and consequences are not yet sufficiently known on the basis of previous experiences. By "scientific experiments," in the sense here employed, are meant interventions and modes of treatment applied to man, which are undertaken for purposes of research without serving curative treatment in an individual case, and the effects and consequences of which are not yet sufficiently controlled on the basis of previous observations. New forms of curative treatment must, in their foundation and their execution, harmonize with the principles of medical ethics and the rules of medical art and science. It should always be carefully considered and tested as to whether the injuries that may result

stand in the proper relation to the expected benefit. The new treatment should not be tried out on man until it has been tested (so far as that is possible) on animals and until the person concerned, or his legal representative, on the basis of previous explanation, has consented. If the consent of the patient has not been secured, a new form of treatment cannot be justly applied unless it is a question of an urgent measure for the preservation of life or for the prevention of serious damage to health and the circumstances are such that it is impossible to secure the consent of the patient in advance. The question of applying a new form of treatment should be considered with especial care when children or juveniles under 18 years of age are involved. Medical ethics disapproves absolutely of taking advantage of a patient's distress for the application of a new form of treatment. In the case of new forms of treatment with living micro-organisms, and, especially, with living causative agents of disease, increased precautions are demanded. Such treatment is permissible only when the method is relatively harmless and when the securing of corresponding benefit cannot, under the given conditions, be expected from any other treatment. In clinics, policlinics, hospitals and other institutions for the treatment and care of patients, a new form of treatment may be applied only by the chief physician in person or by another physician whom he was delegated and under the full responsibility of the chief physician, in which connection the approved arrangements or instructions should be in written form. The publication of the results of a new form of treatment must be made in such a manner that due respect for the patient and the dictates of humanity are fully observed.

If the patient refuses to give consent, experimental treatment is under all circumstances absolutely inadmissible. No experiment on man should be performed that can be avoided by animal experimentation. An experiment on man may not be undertaken until all the fundamental criteria that can be obtained for clarification and certification by means of the biologic methods of laboratory and animal experiment available to scientific medicine have been procured. On the basis of these presuppositions, all irrational and unsystematic experimentation on man is prohibited as a matter of course. Experimental treatment applied to children or to juveniles under 18 years of age is not permissible if the health of the patient would be jeopardized even to the slightest degree. Experiments on moribund persons are incompatible with the principles of medical ethics and hence inadmissible.

The foregoing statements are based on the conceptions of serious minded physicians. It must be admitted that the solution of moral issues presents an *a priori* character. In accepting these just and necessary restrictions and reservations, the fact must not be lost sight of that the testing of new methods is an absolutely essential part of medicine. Thus, at the end of these criteria the point is stressed that physicians must not avoid the assumption of responsibility in seeking new ways of providing for their patients' relief, improvement, protection or healing when it is their conviction that previously known remedies and methods are doomed to fail.

Radio Medical Lectures

For some years, radio medical lectures have been transmitted every two weeks, which are audible throughout Germany and in certain foreign countries. The purpose of the lectures has been to help physicians in rural districts who cannot regularly hear postgraduate lectures to keep in touch with scientific medicine by means of lectures by experienced clinicians. Whether these lectures accomplish their purpose is not definitely known. It is worthy of attention, however, that, before the medical forum, voices are being raised against these lectures, the outgrowth of the experience of men who have to contend with the misunderstandings that arise in the minds of nonmedical listeners. There are said to be at least three nonmedical listeners to one medical man. From other sources doubts are being raised as to the correctness of the assertion that the lectures for the benefit of the rural physicians are becoming increasingly popular or that the radio medical lectures have become for the physician in the rural districts and the small towns "an indispensable means of acquiring postgraduate knowledge." The skeptical attitude is based in part on the results of an inquiry that a physician instituted among sixty physicians of his section of the country. The replies received did not indicate that the medical lectures were becoming "increasingly popular." It is alleged that the medical lectures in their present form are of doubtful value for the rural physician. An investigation is therefore in order, to discover whether the method is feasible and, if so, how the lectures can be modified to give to the prospective audience the most usable postgraduate material. In any event, misunderstandings on the part of lay listeners must be prevented; otherwise the damage may prove to be greater than the benefit.

Postgraduate Work in Berlin

In Berlin, postgraduate courses for physicians are being held constantly. They are arranged by the Berlin Association of docents (tutors) for medical postgraduate training in collaboration with the reich's (federal) committee, the Berlin medical faculty, and the Prussian state committee for medical postgraduate work. The association of docents is composed of members of the faculty as well as of directors of hospitals and chiefs of hospital departments. These continuous courses, which are being held in hourly units by docents, are given in about the same form as a "kolleg" (academic lecture). The courses for 1931, as listed in the catalog, are given in the accompanying table.

Courses for 1931

Name of Course	Number of Docents	Duration of Course	Fee, Marks*
Pathologic anatomy (Performance of necropsies, macroscopic and microscopic diagnosis)	7	Two weeks or one month (also private instruction)	80 to 100 (10 to 20 per hour)
Pharmacology, bacteriology, serology and physical chemistry	6	One month (2 hours twice a week)	50 to 60
Internal medicine	5	Two weeks or one month	40 to 100
Diseases of the heart, blood, lungs, stomach and intestine	25	One month	30 to 50
Infectious, rheumatic, metabolic, renal and other disorders	15	Two weeks or one month	20 to 80
Laboratory work	10	Monthly	45 to 80 5 per hour
Physical therapy and roentgenology	15	Monthly	40 to 80
Neurology and psychiatry	9	Monthly	25 to 200
Pediatrics	8	Two weeks or one month	20 to 100 according to number of hours
Surgery and orthopedics (Including roentgen diagnosis of surgical diseases, and surgical practice on animals and cadavers)	15	Monthly	40 to 150
Gynecology and obstetrics	8	Two weeks or one month	50 to 100 two weeks, 50
Ophthalmology	3	One month or 2 weeks	40 to 50 2 weeks' courses are 20
Otorhinolaryngology	..	.....	20 to 150
Skin, venereal and urinary diseases	13	One month	40 to 150, or 5 per hour
Forensic and social medicine and occupational diseases	9	.....	15 to 80

* Four marks equal approximately one American dollar.

In March and in October the same institutions give courses, which frequently are more specialized. In October, 1931, a special course in thoracic surgery will be held at the Sauerbruch clinic. There will also be courses this fall in internal medicine, pediatrics and urology, and physical and dietary therapy. These courses in March and October differ from the ones named in that they require the whole day, that is, about six hours daily, whereas the continuous monthly courses are held so that they

may be attended by Berlin physicians while they continue to practice.

Special courses for American colleagues (in English) do not exist as yet, but arrangements are now under way to establish such courses. At present, certain docents give courses in English whenever there is a demand for it.

BELGIUM

(From Our Regular Correspondent)

April 10, 1931.

Opportunities for American Physicians and Students to Study Medicine in Belgium

1. All foreign students must submit in Brussels to an examination for a certificate in liberal arts and sciences (certificat d'humanités). This is required to allow the students to take various other examinations leading to the so-called legal degree of Doctor of Medicine, Surgery and Obstetrics (*grade légal*). However, to receive the right to practice medicine all over Belgium, even if the person concerned obtained the legal degree, it is necessary to get a ministerial license or to become naturalized.

2. If the student will not submit to the preparatory examinations for the certificat d'humanités, he can obtain at the end of his studies the purely scientific degree of Doctor of Medicine, Surgery and Obstetrics (*grade scientifique*). It gives none of the rights attached to the *grade légal*.

For 1 and 2 the examinations are identical. They are designated as follows:

(*a*) First, second and third years: natural sciences, physics and chemistry, anatomy, physiology and embryology.

(*b*) Fourth, fifth, sixth and seventh years: complete courses in pathology and therapeutics, obstetrics and gynecology, hygiene, medical jurisprudence; clinics: medical, surgical, obstetric, pediatric, ophthalmologic, otorhinolaryngologic, dermatologic, syphilologic, psychiatric, gynecologic and urologic.

To be admitted to the final examination, recipients who are not interns must show evidence that they regularly attended the main three clinics at least for a period of four months each and also one of the auxiliary clinics for the same period of time.

3. (*a*) The postgraduate courses in Belgium are not organized officially. The recipients who desire to take a postgraduate study in one of the specialties must obtain the consent of the head of the branch selected and serve free. Only the specialty of Doctor of Hygiene (médicin hygiéniste) is established. This course consists of public hygiene, social and individual, as well as sanitary legislation, medical statistics and demography.

(*b*) Regular postgraduate courses, especially at the Medical Faculty in Brussels, are given in all branches of medicine. These courses are quite often given during academic vacations, which are announced through the press.

Filariasis in Europeans

Rodhain and Houssiau reported recently to the Academy of Medicine a number of cases of filariasis due to *Onchocerca volvulus* in Europeans. The rarety, in white persons, of filariasis due to *Onchocerca volvulus* (which is rather frequent in Negroes) has led to the belief that they are refractory to the disease. But the real explanation is that the transmitting insects, *Similium damnosum*, have a short stinging apparatus and find on white persons only small cutaneous areas not protected by clothing. Furthermore, in white persons the parts of the body exposed to the attacks of insects are not the parts that the insects most affect. The four cases of filariasis due to *Onchocerca volvulus*, encountered by the authors in four different districts of the Belgian Congo (Uélé, Equateur, Sankuru and Kasaï), gave them an opportunity to study some points that were still obscure. The localization of the filarial nodules is not determined by the site of the sting of the infective insect as some observers have maintained. The nodules are located in the subcutaneous cellular tissue at points where the skin overlies a stretch of bone: crest of the ilium, trochanter, the area of the ribs, the vertebral spinous processes, which in the natives are but indifferently covered. The migration of the adult filaria before their inclusion in the subcutaneous fibromas appears to be proved. It may be assumed that the adult filariae circulate in the connective tissue and, having reached a region where the bone touches the skin, they find it difficult to proceed farther. Their progress is checked and the delay favors the mingling of the sexes, which furnishes the necessary immobilization for the organization of connective tissue into fibrous tissue. The evolution of filarial fibromas is entirely painless and there is no appreciable change in the external appearance of the skin. *Gale filarienne*, or filarial itch, of Lacroix and Montpellier is not with certainty ascribable to *Onchocerca volvulus*.

The white persons with filarial nodules all had a slight degree of eosinophilia—from 4 to 8 per cent—but without any intestinal parasites. By injection of secretory products of *Onchocerca volvulus*, Rodhain and Van den Branden have shown that *Cercopithecus* monkeys react by the local production of eosinophil cells and the transitory increase of these elements in the peripheral blood. The existence of microfilaria in natives who do not present perceptible nodules leads to the assumption that these are not general. Rodhain and Houssiau raise the question as to whether this fibrous formation is not dependent on allergic reactions that are manifested, during the period of infection, only in certain persons. They admit, however, another possibility: the intradermal microfilaria of the volvulus type may belong to a distinct species of adult nematodes.

The Prophylaxis of Blindness

The Association internationale de prophylaxie de la cécité held recently its annual session in Brussels. This meeting was set for the week of the sixteenth international conference of the Red Cross, for twenty-three national Red Cross societies lent their support to the Association internationale. Many ophthalmologists attended.

Professor de Lapersonne, president of the association, gave a broad view of the program of the organization, for in some quarters the purposes of the Association internationale de prophylaxie de la cécité are confused with those of the societies for the protection of the blind. The latter are numerous and active but their object is entirely distinct from that of the Association internationale, which considers solely the causes that may produce either blindness or a weakening of the vision. The reading of a number of national communications pertaining to the situation in each country clearly established the scope of the work of the association. In particular may be cited the communication presented by Mr. Henderson, president of the society for the aid of the blind in India, where he estimates that there are a million and a half blind persons.

The method of work of the association consists in sending out "flying squadrons" composed of physicians, which sojourn several months in a village, giving treatments and instructing the population. Sometimes these visitors in the villages make rapid diagnoses, apply simple measures of treatment, send suspected cases to the nearest medical center, prepare a register of the blind or of the persons whose eyes are threatened, aid in the control of smallpox, and the like.

Dr. Lassouarn presented, in turn, an extremely interesting communication on the situation in China. One of the most frequent diseases at the Tientsin Hospital is xerosis.

Professor de Lapersonne presented the results of an inquiry that he instituted at the request of the general committee of the Assurances françaises on the principal causes of industrial accidents affecting the vision and on the means of prevention that medical specialists are in a position to suggest. In the frequency of eye accidents, the metallurgic industries occupy

first place. The proportion ranges from 25 to 35 per cent. The speaker emphasized the great importance of early treatment in all eye injuries. The prognosis may be a question of hours. The wearing of protecting glasses and the amelioration of the lighting of shops are potent factors in the preservation of vision.

Mr. Lewis Carris (United States) described the publicity methods in use in America for the prevention of industrial accidents; among others, articles published in the daily press. He suggested that a practical type of protective glasses that would be favorably received by the workmen be designed; if feasible, a competitive contest on the subject might be opened.

Tuberculosis in School Children

Drs. Delcominette and Lamalle presented, before the Association internationale pour la protection de l'enfance, a communication on tuberculosis in school children. They discussed the subject from four different points of view:

THE FORM THAT THE DISEASE TAKES

Open pulmonary tuberculosis is rare in school children. At Liége, of 2,573 persons examined at the dispensary and found to eliminate bacilli, ninety were children under 15 years of age, with the following distribution: age 4, 1; age 5, 2; age 6, 3; age 7, 2; age 9, 3; age 10, 9; age 11, 8; age 12, 17; age 13, 5; age 14, 15; age 15, 25. Of 2,910 children presenting moderate debility, 25 were pulmonary cases with excretion of tubercle bacilli and 50 were affected with tuberculosis of the bone or with suppurating lymph glands. The number of children who react to tuberculin at age 10 is very great, being 65 per cent according to Genevrier.

THE PART THE SCHOOL PLAYS

Children do not expectorate much; hence the danger of contamination of associates is rather slight. The younger the sick child is, the more intimate his contacts are with his associates. Nevertheless, more tuberculous children are found in the higher classes in school than in the lower. It must be remembered that also the teachers may be infective.

The school itself may play a part in the dissemination of tuberculosis if it is overcrowded, poorly ventilated and not kept clean, with inadequate playgrounds and a curriculum that overtaxes the strength of the pupils.

METHOD OF DETECTING TUBERCULOSIS

Medical inspection, together with the sanitary record-card, is the primary basis for the detection of tuberculosis in school children; but the suspected child should be given a more complete examination at the antituberculosis dispensary. In the district of Liége, every year more than 4,000 children are thus examined by specialists and remain under constant supervision.

THE PREVENTION OF TUBERCULOSIS

The school child affected with frank pulmonary tuberculosis or with tuberculosis of the bones in evolution is treated at school and is referred, if need be, by the dispensary to a special institution. The health not only of the teachers but also of the working personnel of a school should be carefully supervised. A school should never be used as a meeting place for adults without being subjected afterward to a thorough disinfection. Once prophylaxis is assured, the tuberculous child should be cured—latent tuberculosis should not be allowed to become active.

In conclusion, while it may appear exaggerated to say that it is at the school and through the school that the social scourge of tuberculosis can best be vanquished, the school can aid effectively the antituberculosis dispensaries in finding foci of contamination. Moreover, the school should be conceived of as a place where the health of a child is not only safeguarded but actually fortified. It has been truly said that the health of the adult can be measured by the care that is bestowed on the health of the child.

NETHERLANDS

(From Our Regular Correspondent)

March 27, 1931.

Disability and Old Age Insurance

At a recent meeting at The Hague, delegates of the Belgian and the Netherlands governments discussed the subject of reciprocity with regard to the application of the laws of Belgium and the Netherlands pertaining to the insurance of workmen against the consequences of disability and old age. The session led to a complete accord between the two delegations with regard to the form of reciprocity to be submitted to their respective governments.

The Diagnosis of Permanent Disability in Physicians

Owing to the creation of the medical mutual benefit society that insures against the results of the professional disability of physicians and the pecuniary losses incident to such disability, it has been possible to study at close range the manifestations of disability in physicians. The statistics published by the life insurance companies with regard to the risks of certain occupations place the medical profession in the class of dangerous occupations. Statistics collected with care and dealing with not only temporary but also permanent disability of the physician would make it possible to reach positive and definitive conclusions. Unfortunately, no such statistics exist.

The following information has, however, been secured: For the past two years the mutual benefit society has noted the duration and the nature of the disability in each insured member. Two facts should be mentioned that are of importance in judging these figures. The figures given concern solely those physicians who were subjected previously to a rigorous examination. Another fact to be noted is that the figures concern only the years from the time of their admission up to and including their sixtieth year. These facts are important in judging the figures because the diseases that are the consequence of old age play no part. These are the figures collected during the past ten years:

Year	Number of Members as of December 31	Number with Permanent Disability	Percentage
1920	396	5	1.26
1921	422	6	1.42
1922	471	5	1.06
1923	606	4	0.66
1924	816	3	0.37
1925	1,034	4	0.39
1926	1,221	5	0.41
1927	1,347	3	0.22
1928	1,478	7	0.47
1929	1,623	5	0.31
1930	1,759	6	0.34

These figures show a rapid increase of membership since 1923. Permanent disability is due chiefly to tuberculosis, nervous diseases, rheumatism and deafness.

Inauguration of the Pedologic Institute

January 15, the Pedologic Institute was inaugurated at Amsterdam in the old building of the physiologic laboratory of the university. This new institute is due to the activity of the association for the care and aid of backward children. The institute owes its creation to the belief that pediatricians are not brought sufficiently in contact with the difficult cases in education requiring special consideration. Pedology is an experimental science and requires consequently a well equipped laboratory. That is a necessity that the Pedologic Institute will provide. Within two years, hope is entertained of securing a building that will accommodate from seventy to eighty children. At present there are only twenty-two places, all of which are taken. The playgrounds are located in such a manner that the

children can be easily supervised. The period of observation will not exceed six weeks. After that time, the children are returned to their parents, who receive an opinion based on scientific observations. For the present, only boys are admitted. Prof. J. Waterink is the director of the new institute. The neurologic and the psychiatric services are under the direction of Prof. L. V. D. Horst and Dr. Baas. The only other pedologic institute in Europe is that of Professor Szondi in Budapest.

The Incidence of Poliomyelitis

The incidence of poliomyelitis in the Netherlands for 1930 was high, 446 cases having been reported during the first eight months, which is a considerable increase over the corresponding period for the previous year. The regions affected were chiefly the central provinces, whereas in 1929 the provinces of the south were more affected—possibly in relation with the epidemic in the northern part of Belgium. The cases were widely diffused. The highest incidence was that of Gouda, a city of 24,000 inhabitants, in which forty-eight cases were reported. The mortality diminished from 21 per cent in 1928 to 16 per cent in 1929 and to 7 per cent in 1930. This observation has been made in many epidemics and is explained in part by the fact that the physicians learn with experience to diagnose the light and atypical cases. More than 71 per cent of the patients were children under 4 years of age. This argument was successfully advanced for keeping the schools open. The public health service designated in all the regions certain neurologists who could be called in consultation at the expense of the central government, and who had the right to hospitalize the patients, likewise at state expense. The efficacy of convalescents' serum appears to have been manifest, especially during the period of the onset of the paralysis, the development of which may be checked by serotherapy. In very acute cases, rapidly fatal, the results of serotherapy were not convincing.

Food Inspection in Amsterdam

The annual report of Amsterdam's food inspection service contains the following items of general interest: In the laboratory, 41,849 samples of foods were submitted for analysis. Of these, 24,712 were samples of milk. Of the samples examined, 2,681 (669 of milk) were found to be in contravention of the laws. Every day, the commission received complaints on account of unsuitable foods being offered for sale. The complaints concerned chiefly fish and poultry. Each complaint was made the subject of a special inquiry. In a bakery of the city, the head baker appeared to be affected with bakers' eczema and was ordered to quit work for a time. The underweight loaves of bread are decreasing. Many retailers were found to be remiss in complying with the order that the origin of cheese must be stated on the package.

As regards the control of milk, the police has been diligent in enforcing such provisions of the law that do not require the services of an expert. The number of infractions with regard to the transportation of milk is still rather high (782 out of 3,911 examinations). There were 511 examinations made in the cafés and the lunchrooms to see that the legislation pertaining to milk is complied with. Likewise the pasteurization plants and the large milk depots were subjected to careful surveillance. The report gives in detail the nature of the infractions: butter fat content, adulteration. The average butter fat content of the milk in Amsterdam was 3.7; 1,161 farms were inspected. Of 126 samples of milk supposed to be of the highest grade, 3 had a butter fat content of less than 3 per cent, while 13 samples were unsatisfactory from the bacteriologic point of view.

The report contains also many tables concerning the suits that were brought; likewise appraisal of food products analyzed and the results of the analysis; also reports on food products examined at the frontiers.

Marriages

VERNON BRADLEY ROBERTS, Cincinnati, to Miss Katherine Coons Pogue of Maysville, Ky., in April.

NICHOLAS M. ALTER, Jersey City, N. J., to Miss Eleanor C. Reed of Tarrytown, N. Y., April 11.

JOHN W. KING, Hartington, Neb., to Miss Eva Tatreau, in March.

Deaths

Paul Stacy Halloran ✠ Colonel, M. C., U. S. Army, Denver; University of Pennsylvania School of Medicine, Philadelphia, 1899; member of the American College of Surgeons; entered the army as an assistant surgeon in 1901 and was promoted through the various grades to that of colonel in 1927; served during the World War; aged 57; died, April 26, of chronic fibrous myocarditis, in the Fitzsimons General Hospital, where he was on duty as commanding officer.

Edgar R. McGuire, Buffalo; University of Buffalo School of Medicine, 1900; member of the Medical Society of the State of New York, American College of Surgeons, and the American Surgical Association; professor of surgery at his alma mater; on the staffs of the Buffalo General and the J. N. Adam Memorial Hospital, Perrysburg; aged 54; died, April 22, of pernicious anemia, cirrhosis of the liver and cerebral hemorrhage.

Louis Michael Gompertz ✠ New Haven, Conn.; Yale University School of Medicine, New Haven, 1896; assistant clinical professor of gastro-enterology at his alma mater; member of the American Gastro-Enterological Association; formerly member and president of the city board of health; on the staffs of the Hospital of St. Raphael, New Haven County Home, and the Grace Hospital; aged 58; died, in February.

Walter Hulme Sawyer ✠ Hillsdale, Mich.; University of Michigan Homeopathic Medical School, Ann Arbor, 1884; member of the American College of Surgeons; formerly member of the state board of registration in medicine; regent of the University of Michigan, Ann Arbor; aged 69; died suddenly, April 28, of heart disease.

William M. Lynch, Farview, Pa.; Medico-Chirurgical College of Philadelphia, 1901; member of the Medical Society of the State of Pennsylvania and the American Psychiatric Association; formerly county coroner and state senator; aged 54; superintendent of the Farview State Hospital, where he died, March 29.

Edwin Brown Claybrook, Cumberland, Md.; University College of Medicine, Richmond, 1898; member of the Medical and Chirurgical Faculty of Maryland and the American College of Surgeons; on the staff of the Allegheny Hospital; aged 60; died, February 28, of cerebral hemorrhage.

Charles E. Holton, Osgood, Ind.; Kentucky University Medical Department, Louisville, 1906; member of the Indiana State Medical Association; health officer of Ripley County; aged 53; died, April 11, in Milan, of cerebral embolism and acute hemorrhagic nephritis.

William Howard Henninges, Orwell, Ohio; Cleveland Medical College, 1896; Cleveland College of Physicians and Surgeons, Medical Department of Ohio Wesleyan University, Cleveland, 1899; aged 64; died, February 14, in the Ashtabula (Ohio) General Hospital.

Steele Bailey, Sr., Mammoth, Utah; Jefferson Medical College of Philadelphia, 1865; member, past president and formerly secretary of the Kentucky State Medical Society; Civil War veteran; aged 88; died, March 29, of arteriosclerosis.

DeWitt Clinton R. Miller ✠ Mason and Dixon, Pa.; Jefferson Medical College of Philadelphia, 1889; member of the Medical and Chirurgical Faculty of Maryland; formerly state senator of Maryland; aged 64; died suddenly, March 18.

George Edward Smith, Mount Pleasant, Iowa; Hahnemann Medical College and Hospital, Chicago, 1880; past president of the Henry County Medical Society; aged 77; died, March 25, in the Mercy Hospital, Burlington, of uremia.

Howard William Hottenstein, Akron, Ohio; Western Reserve University School of Medicine, Cleveland, 1923; member of the Ohio State Medical Association; aged 32; died, April 22, in the Lakeside Hospital, of septic endocarditis.

James Terry Sanders, Dilley, Texas (registered by Texas State Board of Medical Examiners, under the Act of 1907); member of the State Medical Association of Texas; aged 61; died suddenly, March 11, of chronic myocarditis.

Albert Stewart, Georgetown, Ky.; Louisville (Ky.) Medical College, 1893; member of the Kentucky State Medical Association; health officer of Scott County and Georgetown; served during the World War; aged 60; died, April 2.

Walter Martin Cross ⊕ Kansas City, Mo.; University Medical College of Kansas City, 1902; formerly professor of chemistry at his alma mater; aged 53; died, March 24, of chronic interstitial nephritis and hypertension.

Thomas Lafayette Treadaway, Brownfield, Texas; Southern Medical College, Atlanta, 1890; member of the State Medical Association of Texas; health officer for Terry County for twelve years; aged 71; died suddenly, April 7.

Charles Ratchford Chapman ⊕ Springfield, Mass.; Jefferson Medical College of Philadelphia, 1892; member of the American College of Surgeons; on the staff of the Wesson Memorial Hospital; aged 59; died, March 2.

George McClellan Burroughs ⊕ Danielson, Conn.; Baltimore Medical College, 1900; member of the American Academy of Ophthalmology and Otolaryngology and the American College of Surgeons; aged 68; died, March 1.

Augustin J. Himel, New Orleans; Medical Department of the University of Louisiana, New Orleans, 1881; aged 72; died, April 9, in the Touro Infirmary, of acute encephalitis, paralytic ileus and bronchopneumonia.

William Burke Kirkpatrick, Lemoyne, Pa.; Jefferson Medical College of Philadelphia, 1902; member of the Medical Society of the State of Pennsylvania; aged 56; died, February 10, in a hospital at Chambersburg.

Robert James Redden, Sulligent, Ala.; Washington University School of Medicine, Baltimore, 1872; member of the Medical Association of the State of Alabama; aged 82; died, March 13, of cerebral hemorrhage.

William E. Walsh ⊕ Morris, Ill.; McGill University Faculty of Medicine, Montreal, Que., Canada, 1892; past president and secretary of the Grundy County Medical Society; aged 63; died, April 28, of angina pectoris.

Joseph Schwarz, Spring Hill, Ala.; Medical Department of the Tulane University of Louisiana, New Orleans, 1901; served during the World War; aged 52; died suddenly, March 13, in New Orleans, of heart disease.

James E. Ott, Clyde, Ohio (licensed, Ohio, 1909); member of the Ohio State Medical Association; aged 65; died, April 4, in the Memorial Hospital, Fremont, of internal injuries received in an automobile accident.

Frank Lawrence Castleberry, Jonesboro, Ark.; University of Arkansas School of Medicine, Little Rock, 1914; member of the Arkansas Medical Society; served during the World War; aged 56; died, March 12.

James Alonzo Belyea, Glendale, Calif.; Detroit College of Medicine and Surgery, 1915; member of the American Psychiatric Association; served during the World War; aged 50; died, April 4, of tuberculosis.

William Ernest Procunier, Corinth, Ont., Canada; University of Toronto Faculty of Medicine, 1905; served during the World War; aged 55; died, January 3, in the Toronto General Hospital, of meningitis.

Harold Duncan Cochrane ⊕ Albany, N. Y.; New York Homeopathic Medical College, 1898; aged 53; on the staff of the Memorial Hospital, where he died suddenly, April 7, of acute myocarditis.

Frank C. Sawers, Pittsburgh; Pulte Medical College, Cincinnati, 1900; on the staff of the Homeopathic Medical and Surgical Hospital and Dispensary; aged 65; died, February 9, of pneumonia.

George M. Sewall, Portland, Ore.; Medical Department of Hamline University, Minneapolis, 1909; served during the World War; aged 55; died, March 15, in the U. S. Veterans' Hospital, of septicemia.

Mary Rowley Lawson, New London, Conn.; Tufts College Medical School, Boston, 1898; aged 51; died, April 8, in the Lawrence and Memorial Associated Hospitals, of cerebral hemorrhage.

George Edward Rollins, Peoria, Ill.; Rush Medical College, Chicago, 1884; aged 68; died, in March, of coronary occlusion, chronic myocarditis, arteriosclerosis and chronic nephritis.

Christian David Esch, Dhamtari, Central Provinces, India; Bennett Medical College, Chicago, 1910; for many years a medical missionary; aged 48; died, March 21, of cerebral hemorrhage.

Clery Rutan Treat ⊕ Okarche, Okla.; Cornell University Medical College, New York, 1899; member of the State Medical Association of Texas; aged 54; died suddenly, March 11, of heart disease.

Ole Sever Neseth ⊕ Kenyon, Minn.; Northwestern University Medical School, Chicago, 1917; served during the World War; aged 44; died, April 23, of influenza and bronchopneumonia.

Robert Boyd Stewart, Toronto, Ont., Canada; Johns Hopkins University School of Medicine, Baltimore, 1917; aged 55; died, February 24, in the Toronto General Hospital, of thrombosis.

William Charles Todt ⊕ Kingman, Ariz.; Syracuse University College of Medicine, 1887; vice president of the Arizona State Medical Association; aged 65; died, April 13, of coronary thrombosis.

Timothy Francis McCarthy ⊕ Jamaica, N. Y.; Harvard University Medical School, Boston, 1896; member of the Massachusetts Medical Society; aged 62; died, January 24, of diabetes mellitus.

Edward Lycan Swadener, Terre Haute, Ind.; Indiana Medical College, 1907; member of the Indiana State Medical Association; aged 51; died, March 10, of spinal meningitis.

William Alvan Hitchcock, Jr., Boston; Harvard University Medical School, Boston, 1896; aged 56; died, March 24, at Kittery Point, Maine, of carcinoma of the large intestine.

William G. England, Cedartown, Ga.; Medical College of Alabama, Mobile, 1874; member of the Medical Association of Georgia; aged 79; died, March 26, of cerebral hemorrhage.

Anthony Gruessner ⊕ New Brunswick, N. J.; Long Island College Hospital, Brooklyn, 1906; served during the World War; aged 50; died, April 20, of erysipelas of the face.

Albert Livingston Shanks, The Pas, Man., Canada; McGill University Faculty of Medicine, 1889; served during the World War; aged 65; was found dead, January 28.

John Gibson Edwards, Edgefield, S. C.; Medical College of the State of South Carolina, Charleston, 1904; for eighteen years mayor; aged 46; died, February 4, of heart disease.

Robert Charles Macy ⊕ Atmore, Ala.; Medical College of Alabama, Mobile, 1887; Spanish-American War veteran; aged 66; died, April 5, of pneumonia and heart disease.

John William Fred Purvis, Brockville, Ont., Canada; University of Bishop College Faculty of Medicine, Montreal, 1892; aged 60; died, March 15, of angina pectoris.

John Milton Anderson, Greenville, Ohio; Rush Medical College, Chicago, 1902; member of the Ohio State Medical Association; aged 54; died, April 12, of pneumonia.

James Hunt Powell, Redland, Okla.; Memphis (Tenn.) Hospital Medical College, 1896; aged 56; died, March 15, in Fort Smith, Ark., of atrophic cirrhosis of the liver.

John Brand Pitman, Rochester, Minn.; Washington University School of Medicine, St. Louis, 1901; aged 54; died, April 25, following an operation for gastric ulcer.

Edward Collins Neville ⊕ Seattle; Fort Wayne College of Medicine, 1902; aged 59; died, March 22, of chronic nephritis, acute dilatation of the heart and uremia.

John Thompson, Duncombe, Iowa; McGill University Faculty of Medicine, Montreal, Que., Canada, 1892; aged 61; died, February 20, of heart disease and nephritis.

Daniel Allen Penick ⊕ Nicholasville, Ky.; Bellevue Hospital Medical College, New York, 1898; aged 58; died, April 10, of pneumonia, following a cerebral hemorrhage.

Phillip Sheridan Ide, Wayland, Mass.; Dartmouth Medical School, Hanover, N. H., 1897; aged 61; died, February 23, in the Framingham-Union Hospital, Framingham.

Samuel D. Knox, Alliance, Ohio; Jefferson Medical College of Philadelphia, 1879; aged 90; died, March 21, in the Alliance City Hospital, of cerebral hemorrhage.

Frank Neal Turner, Lansing, Mich.; Detroit College of Medicine, 1888; member of the Michigan State Medical Society; aged 76; died, April 10, of pernicious anemia.

Russell Eugene Neff ⊕ Dothan, Ala.; Rush Medical College, Chicago, 1928; county health officer; aged 32; died, April 17, of peritonitis following a ruptured appendix.

Willey Lyon Kingsley, Rome, N. Y.; Harvard University Medical School, Boston, 1891; aged 64; died, April 6, in Palm Beach, Fla., of a self inflicted bullet wound.

Arthur Foster Sumner, East Orange, N. J.; Boston University School of Medicine, 1888; Baltimore Medical College, 1902; aged 65; died, March 18, of nephritis.

Frank Xavier Adams, Akron, Ohio; Eclectic Medical Institute, Cincinnati, 1885; aged 77; died, April 15, of arteriosclerosis and hypertrophy of the prostate.

John Clayton Weidman, Pittsburgh; Jefferson Medical College of Philadelphia, 1882; aged 70; died, in April, at Atlantic City, N. J., of angina pectoris.

Henry Briggs, Versailles, Ill.; College of Physicians and Surgeons, Keokuk, Iowa, 1880; aged 77; died, March 29, of cerebral hemorrhage and arteriosclerosis.

William Virgil Nash, Atlanta, Ga.; Georgia College of Eclectic Medicine and Surgery, Atlanta, 1914; aged 40; died, March 30, of staphylococcic bacteremia.

Edith H. Saunders Spence, Santa Ana, Calif.; Creighton University School of Medicine, Omaha, 1901; aged 52; died suddenly, April 9, of lobar pneumonia.

Benjamin Hiram Baggott ✠ Columbia, S. C.; Medical College of the State of South Carolina, Charleston, 1915; aged 43; died, April 14, of pneumonia.

Samuel W. Burns, Philadelphia; University of Pennsylvania School of Medicine, Philadelphia, 1887; aged 72; died, February 24, of cerebral hemorrhage.

Frances Langworthy Irons, Brookfield, N. Y.; New York Medical College and Hospital for Women, 1888; aged 75; died, March 25, in Montclair.

Clarence N. Platt, Long Island City, N. Y.; New York Homeopathic Medical College and Hospital, 1888; aged 65; died, April 7, of cerebral hemorrhage.

Henry Bishop Hatch, Hart, Mich.; University of Michigan Medical School, Ann Arbor, 1876; aged 77; died, March 27, at a hospital in Kalamazoo.

Chester Arthur Williams, Gruver, Texas; University of Arkansas School of Medicine, Little Rock, 1914; aged 46; died, April 3, in Borger.

Charles Winburn Powell, Cedar Rapids, Iowa; Keokuk Medical College, 1904; aged 59; died, February 20, of pernicious anemia and myocarditis.

William Oscar Collins, Albuquerque, N. M.; Chattanooga (Tenn.) Medical College, 1902; aged 50; died recently, of tuberculous meningitis.

John A. Blair, Hattiesburg, Miss.; Jefferson Medical College of Philadelphia, 1890; aged 75; died, in January, of cardiohepatic renal disease.

Celia Dupont, Detroit; Fort Wayne College of Medicine, 1889; aged 68; died, April 13, of myocardial degeneration and coronary thrombosis.

M. B. Garrett, Gainesville, Texas; University of Louisville (Ky.) School of Medicine, 1880; Civil War veteran; aged 88; died, February 13.

Charles Morris Weeks, Northport, N. S., Canada; College of Physicians and Surgeons, Baltimore, 1891; aged 65; died, January 8.

Augustus Wesley Wright, Rome, Ga.; Medical Department of the University of the City of New York, 1876; aged 83; died, March 11.

George D. Dalgliesh, Osceola, Mo.; University Medical College of Kansas City, 1890; aged 65; died, January 8, of chronic colitis.

William E. Warren ✠ Williamston, N. C. (licensed, North Carolina, 1893); county health officer; aged 61; died, April 5, of pneumonia.

Joseph Watson Vicars, Pikeville, Ky.; Louisville (Ky.) Medical College, 1893; aged 62; died, April 4, of cerebral hemorrhage.

J. Emmett Sebrell, Charlotte, N. C.; Medical College of Virginia, Richmond, 1882; aged 69; died, April 4, of coronary occlusion.

Joseph Roddey Miller ✠ Rock Hill, S. C.; Medical College of the State of South Carolina, Charleston, 1891; aged 63; died, April 6.

James Allen Moore, Dinuba, Calif.; University of Louisville (Ky.) School of Medicine, 1881; aged 78; died, January 28.

Jonathan Branham, Freedom, Ind. (licensed, Indiana, 1903); aged 83; died, March 25, of cerebral hemorrhage.

Bureau of Investigation

THERONOID AND VITRONA

The Magic Horse Collar Campaign Continues

The old-time electric belts of our fathers' and grandfathers' days were crude affairs, usually bands of imitation leather, to the inner surface of which were riveted alternate disks of copper and zinc. They were to be worn next to the body and were guaranteed to cure whatever ailed one. Quackery moves with the times. The crudities of the gay nineties have given place to the finesse of 1931. Human credulity is just as common a commodity as ever, but the methods of capitalizing it must, perforce, change with the times.

The present-day successor to the old electric belt is the so-called magnetic belt. The first of these was put on the market by Gaylord Wilshire, an individual who, prior to his excursions into the field of quackery, had dabbled in real estate, gold-mine promotions and parlor socialism. Wilshire, like the other arch-quack of the century, Abrams, hailed from California. His belt he called I-on-a-co. The device was dealt with in some detail in this department of THE JOURNAL of January 22, 1927, and the same article appeared in *Hygeia* for February, 1927.

The I-on-a-co and its numerous imitations, are simple solenoids—coils of insulated wire that are to be plugged into the alternating current of the electric lighting system, with the result, of course, that a fluctuating magnetic field is produced within the coil.

While it has been known for many years by scientific men that magnetism has absolutely no effect on the physiologic processes of the body and while it has also been known that the magnetic permeability of the human body is that of air, the public does not know it—and that is all that is necessary from the standpoint of the quack. The public has been told that any of these solenoids will, by magnetizing the iron in the blood, cure whatever ailments may exist!

Wilshire's heavy and plausible advertising campaign of his I-on-a-co brought in a golden flow to the one-time realtor. Imitations immediately began to appear. And there have been many of them, for it was easy to make these magnetic belts for $5 or less and to sell them for $50 or more. Many of these belts have disappeared from the market, not because they were not just as good as those that still sell, but because they were not so well or so heavily advertised. In the field of quackery, advertising is much more important than the product!

Wilshire's I-on-a-co flourished until Wilshire himself died of one of the conditions for which his belt was specifically recommended. One of Wilshire's employees was a Philip Ilsley, according to information furnished by the National Better Business Bureau. Ilsley worked for Wilshire from May, 1926, to February, 1927. He then operated I-on-a-co offices in Duluth, Minn., and Cleveland, Ohio. This continued until September, 1928, at which time he is said to have split with the I-on-a-co concern and organized a company of his own. This was eminently good commercial sense. Anybody could make a device exactly similar to the I-on-a-co and by making it oneself, could get all of the profits instead of having to split them.

Ilsley called his new belt Theronoid and organized the Theronoid Corporation. Offices were opened in New York City, Boston, Cleveland, St. Louis, Philadelphia, Detroit, Washington, and elsewhere. In fact, still according to information furnished by the National Better Business Bureau, Ilsley admitted that there were over one hundred retail offices established, and by the latter part of 1929, he had sold approximately 12,000 Theronoids!

Among Ilsley's employees was one Rodney Madison, who called himself a physician. The records of the American Medical Association fail to show that the man was ever graduated by any reputable medical school or licensed to practice medicine and surgery in any state in the Union. He does, apparently, hold a diploma from a chiropractic concern in California and was granted a license of the "drugless" type, by that state. In 1913, two years before Madison got his chiropractic diploma, the Los Angeles papers reported that Madison's offices had been

raided by state medical inspectors as a result of complaints made by indignant members of the Women's Loyal Moose Circle. From the report, it appeared that Madison had held himself out as a physician and had become the medical examiner for the Women's Loyal Moose Circle. After a number of women had submitted themselves to physical examinations by Madison, they discovered he was not a physician.

San Francisco papers for July 29, 1924, contained pictures of what were said to be some of the principals in the "diploma mill" ring that was then being exposed. Madison's name headed the list. Madison, in 1926, had been employed by Wilshire's I-on-a-co company. In 1927, he was running "on his own" in Indianapolis, under the trade name, "Dr. Rodney Madison's Laboratories, Inc.," and exploiting another solenoid called Vitrona. In March, 1926, the Federal Trade Commission issued a complaint against the Dr. Rodney Madison Laboratories, Inc. Among the charges made by the Commission was:

> "In truth and in fact respondent's Madison's said device Vitrona when applied to the human body has no curative or therapeutic value, action or effect whatsoever."

On April 1, 1931, the Federal Trade Commission issued a Cease and Desist Order, directing Madison to discontinue advertising in connection with the Vitrona that it would cure, or help cure, disease or had any curative or therapeutic value whatever.

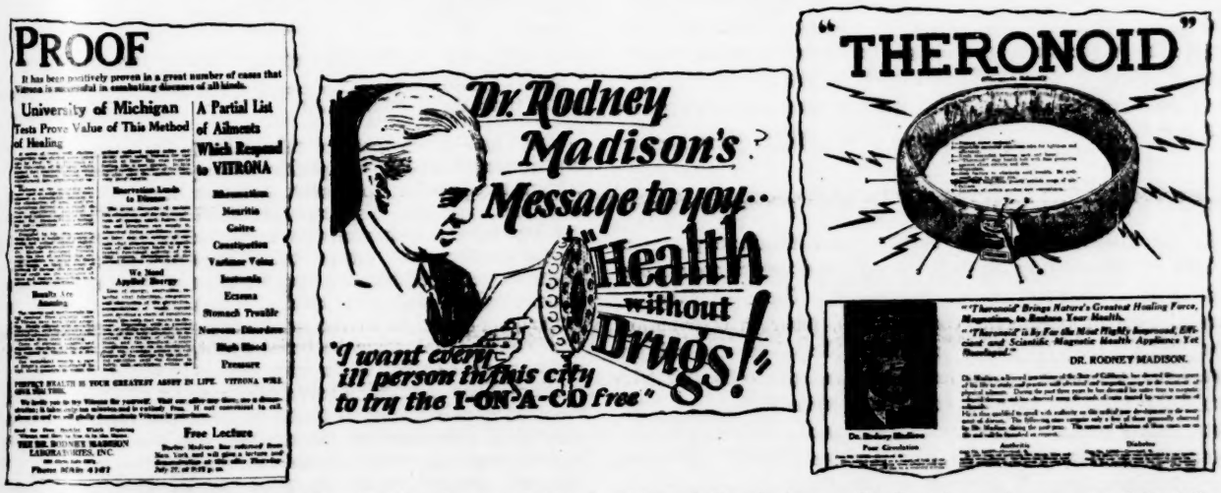
The Vitrona contained six hundred turns of insulated copper wire and was covered with leather, or some imitation. As part of the mystery connected with this solenoid, there was a so-called control box, which was said to regulate the strength of the magnetic field. It did nothing of the sort!

The Theronoid was another coil of wire, similar to the I-on-a-co and the Vitrona, and a half dozen other fakes of the same kind. In the latter part of December, 1929, the New York *Herald-Tribune* published a news item regarding three medical fakes, one of which was the Theronoid, all of them under scrutiny at that time. The *Herald-Tribune* in its article quoted, in effect, the statement made by the Bureau of Investigation of the American Medical Association, that the Theronoid was wholly worthless as a curative device. As a result of the item, the Theronoid concern brought suit for libel against the *Herald-Tribune*. The cheapest come-back a quack has is that of filing a precipe in an alleged suit for libel. It gives those papers that accept his advertising the chance to carry tainted news that the public interprets as a declaration that the concern bringing the suit has been grossly wronged. At the time the Theronoid people brought their suit against the New York *Herald-Tribune*, the Bureau of Investigation received letters from the *Herald-Tribune's* attorneys, asking for evidence of the Bureau's statement, that the Theronoid had no therapeutic value. Such evidence was furnished and the lawyers were told that, in the opinion of the director of the Bureau, the Theronoid suit would never be brought to trial. On May 1, 1930, the attorneys for the *Herald-Tribune* reported that the Theronoid suit had been discontinued at the request of the plaintiff, without costs, payment, or any publication!

In the advertising of the Theronoid, various physicians (or alleged physicians) have been quoted in favor of the device. One Dr. Harry B. Crocker has talked over the radio for the Theronoid outfit and was, in fact, associated with Theronoid. Crocker's professional and legal history, which need not be gone into at this time, is not one to be proud of. Incidentally, Crocker was also connected with the I-on-a-co promotion. John L. Corrish was another individual who puffed the Theronoid, he also having been employed by the concern. Corrish claimed to have made experiments with the device on guinea pigs, although from the man's professional history, we doubt if he knows enough to do any scientific work of a biologic character. Corrish is the same person who was associated with the Okola Laboratory fraud of Rochester, N. Y. Corrish also was tied up with the Edward J. Woods tobacco-cure fraud.

The notorious George Starr White, quack and "patent medicine" exploiter of California, has been another booster for Theronoid. White's activities were fairly fully dealt with in this department of THE JOURNAL, April 13, 1929.

H. C. Bennett, self-styled secretary of the "National College of Electro-Therapeutics," has also been quoted by Theronoid. Bennett is the same person that offered a correspondence course in electrotherapeutics, while the "college" offered for sale various instruments, including alleged developers for bust and penis.


PROOF
University of Michigan Tests Prove Value of This Method of Healing
A Partial List of Ailments Which Respond to VITRONA
Rheumatism
Neuritis
Goitre
Constipation
Yellow Veins
Insomnia
Eczema
Stomach Trouble
Nervous Disorders
High Blood Pressure
Free Lecture
Dr. Rodney Madison's ? Message to you.. "Health without Drugs!"
"I want every ill person in this city to try the I-ON-A-CO free"
"THERONOID"
"Theronoid" Brings Nature's Greatest Healing Force, Magnetism, to Restore Your Health.
DR. RODNEY MADISON.

Photographic reproductions (greatly reduced) of some of the advertising of "magic horse collars" under such names as I-On-A-Co, Vitrona and Theronoid. Note that Rodney Madison, self-styled "Doctor" figures in all of them.

The Council's report, in effect, declares what has already been stated—that both the Theronoid and the Vitrona are wholly and utterly without therapeutic action.

On another page of this issue will be found a report of the Council on Physical Therapy of the American Medical Association on the Vitrona and the Theronoid. It may seem like a wicked waste of scientific effort and the time of busy men to have worked on these two self-evident fakes. Unfortunately, it sometimes becomes necessary, in the interests of the public health, to produce scientific evidence of the fact that the moon is not made of green cheese.

Discovery of the Conditioned Reflex.—Behaviorism in America started as a protest rather than as a discovery. The Russian work which we are now to consider started with the discovery of the conditioned reflex, and that discovery has been of more aid and comfort to our behaviorists than any single result of their own. It was about 1905 that the conditioned reflex was discovered almost simultaneously in two laboratories in what was then known as St. Petersburg. We need not go into the question of priority between the two discoverers, Pavlov and Bechterev, the first a physiologist, the other a neurologist. The two were rivals in this work and stimulated each other to great activity.—Woodworth, R. S.: Contemporary Schools of Psychology, New York, Ronald Press Company, 1931.

Correspondence

NARCOTICS IN THE TREATMENT OF COUGHING

To the Editor:—Apropos of Dr. Hatcher's instructive article (THE JOURNAL, April 25, p. 1383), irritation of Arnold's branch to the ear is by no means a rare cause of obstinate coughing. Aside from disorders of the external ear, such as eczema (which does not often elicit coughing) and impacted cerumen, instrumentation of the canal or region of the drum usually brings on a cough response. The most common cause of obstinate coughing as an aura reflex is a foreign body, and this should always be suspected in case of a stubborn, useless, cough in children who have the common and playful habit of putting beads, small beans or peas into the ear or nose. The danger of postoperative coughing or, in fact, any expulsive effort (sneezing, vomiting, hiccuping) is particularly grave in the case of ophthalmic patients and after cataract or glaucoma operations may burst open the operative wound, or bring on intra-ocular hemorrhage and not only nullify the effects of the surgical intervention but even jeopardize the eye. In these, generally aged, patients, coughing must be prevented or promptly relieved, at any cost. The dorsal decubitus required after eye operations may predispose to unpleasant sensations causing a coughing reflex. Among others it may suffice to mention the accumulation of nasal secretion in the pharynx, there drying and giving rise to a cough.

PERCY FRIDENBERG, M.D., New York.

CHEMICAL PNEUMONIA AND PSITTACOSIS

To the Editor:—Peterson, Spalding and Wildman published in THE JOURNAL, July 19, 1930, the report of the autopsy observations in a case of human psittacosis. These showed "an unusual type of pneumonic consolidation, lobar in distribution, more uniform than bronchopneumonia, but less dense and uniform than lobar pneumonia, with less fibrin and pus cells and with a cellular alveolar exudate consisting predominately of large mononuclear cells." Gorham, Calder and Vedder reported several cases of psittacosis in THE JOURNAL, June 7, 1930, and commented on the type of pneumonia that has occasionally been found in autopsies of cases of this disease. The pneumonia has been said to be poor in fibrin, red cells and leukocytes but rich in desquamated alveolar epithelium. The authors wonder "whether it is justifiable to consider these changes pathognomonic of human psittacosis."

In 1912, Francis Carter Wood (*Arch. Int. Med.* **10**:478 [Nov.] 1912) reported a case of poisoning from breathing nitric oxide fumes, which at autopsy showed a similar type of pneumonia. A few other authors have made similar observations, and some textbooks of pathology have adopted the term "chemical pneumonia." By this term they mean pneumonia that presents a pathologic picture such as that described, in which the etiologic factor is the inhalation of some irritating gas, including the gases used in warfare. The pneumonia is said to be due solely to chemical action and not to bacterial invasion.

In conjunction with M. S. Allen, I made a study of the relation of bacteria to so-called chemical pneumonia, and our results were published in the *Journal of Experimental Medicine* for July, 1929. We studied pneumonia caused by the inhalation of a great variety of chemical irritants, including all the best known war gases. Most of these pneumonias were typical bronchopneumonias; only occasionally was the peculiar type described above found. Bacteria could always be demonstrated both by culture and by bacterial stains in both types. Furthermore, we occasionally encountered the so-called chemical pneumonia in animals that had never been gassed or subjected to other irritating substances in any way but which had died of spontaneous pneumonia or had been killed for other reasons and the pneumonia found at autopsy without having been suspected before. The term "chemical pneumonia," therefore, seems to be a misnomer.

Now that the same type of pneumonia has been reported several times in a disease of supposedly bacterial origin, the exact cause of this peculiar pathologic picture is more puzzling than ever. It certainly does not seem to be pathognomonic of anything. Ordinary bronchopneumonia has also been reported in autopsies in cases of human psittacosis. Just why, under apparently exactly similar conditions and with similar etiologic factors, in certain instances a pneumonia should be produced that is characterized largely by an exudate of desquamated alveolar epithelial cells, while in most cases the ordinary bronchopneumonia results, is open to question.

A. R. KOONTZ, M.D., Baltimore.

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

USE OF OLD TUBERCULIN IN TUBERCULOSIS

To the Editor:—What is the present status of the use of old tuberculin in the treatment of tuberculosis?

M.D., Montana.

ANSWER.—Koch reported tuberculin to the profession, in 1890, and it was hailed as a specific remedy; unfortunately, it was administered in a somewhat reckless way by inexperienced clinicians, and the disadvantages soon resulted in widespread condemnation. Tuberculin is not a selective curative remedy in the treatment of tuberculosis. It is not a specific, nor has there as yet been found a specific remedy for the treatment of tuberculosis in any of its clinical forms. It was thought, as an underlying principle in the production of artificial immunity in tuberculosis, that some bacterial agent, such as old tuberculin, might prove effective in creating immunity to the disease.

Since Koch introduced tuberculin, many well trained observers have been able to demonstrate its practical value in the treatment and diagnosis of tuberculosis. While many physicians specializing in tuberculosis, both in the sanatorium and in private practice, use old tuberculin, it is capable of doing irreparable damage to a tuberculous patient if not properly administered. It should not be used by general practitioners in routine office practice, but by specialists in the sanatorium or home where there is careful clinical supervision of the patient. One should acquire a practical knowledge of the preparation of the various dilutions used before contemplating its administration, and no attempt should be made to use tuberculin by merely following instructions in a textbook. This knowledge may be obtained in the various clinics and schools devoted to the teaching of the new management of tuberculosis. Physicians should ever remember that tuberculin is a potent therapeutic agent of value, but unless a practical working knowledge of its use is acquired, they will sooner or later meet with some unhappy experience.

THROMBO-ANGIITIS OBLITERANS — USE OF OSCILLOMETER

To the Editor:—In THE JOURNAL (February 7, p. 477) Schlesinger, in "Prognosis of Thrombo-Angiitis Obliterans," states that "the application of heat should be avoided." 1. Is there any basis for this assertion? 2. What do you consider the cardinal symptoms and signs of this disease? 3. What is your opinion of the oscillometer as to its value in determining the patency of the blood vessels? Please omit name.

M.D., New York.

ANSWER.—1. Only when it increases the pain. Heat is not used, as a rule, in older individuals with arteriosclerotic disease, as they are more subject to burns than younger patients with thrombo-angiitis obliterans.

2. Intermittent claudication and fatigue symptoms, cold extremities, superficial phlebitis and postural color changes.

3. The oscillometer does not give any additional information regarding the patency of vessels other than that which one can obtain from palpation of the vessels in the extremities.

More than 95 per cent of these patients are males.

USE OF BISMUTH IN TREATMENT OF SYPHILIS

To the Editor:—Regarding the treatment of syphilis: Until the introduction of the bismuth salts, it was my practice to use mercuric salicylate with an average dosage of 1 grain (0.065 Gm.) weekly for twelve weeks, with arsenicals or iodides as indicated, courses being repeated as commonly taught. With the introduction of the bismuth salts, I have largely replaced the mercury by bismuth salicylate, with an average dosage of 2 grains (0.13 Gm.) at weekly intervals. Several other bismuth preparations have been called to my attention and are, as I understand, used with satisfaction by many physicians. In reprint 13, Venereal Disease Information, volume 10, number 2, Feb. 20, 1929, U. S. P. H. S., by Joseph Earle Moore and collaborators, is the statement regarding bismuth therapy that bismuth can be administered satisfactorily in general practice in but one way—by intramuscular injection of an insoluble salt (or metallic bismuth) suspended in an oily medium. The usual dosage of 2 or 3 grains at weekly intervals is advised. Among the preparations at hand I am provided (for clinic use) with ampules of 2 cc. aqueous solution bismuth sodium tartrate, 1.5 per cent, put up by G. D. Searle & Co., Chicago. Also thio-bismol (P. D. & Co.) to be dissolved in water, each ampule containing 3 grains of the medication. Parke, Davis & Co.'s literature states that the "drug is absorbed from the site of injection (intramuscular) in two hours," a disadvantage as I see it. As I estimate it in comparison with the Searle preparation, 1.5 per cent of 2 cc. represents 0.03 Gm. of the salt against the 0.1 to 0.2 Gm. (1.5 to 3 grains) recommended in the bulletin from the U. S. Public Health Service referred to. When only weekly administrations are possible, can either the bismuth sodium tartrate, or thio-bismol be regarded as suitable forms in which to administer bismuth? Colleagues tell me, with no statistical support, however, that they can get the full effect of bismuth medication with these preparations. Please omit name and city.

M.D., *California.*

ANSWER.—Today the number of bismuth preparations on the market is large, and it is difficult to pick out the preparation that will serve the purpose. The different factors come up as to whether a soluble or an insoluble preparation is to be preferred, how often the dosage is going to be given, and how rapidly it is desired to have the preparation absorbed from the local injection site.

It depends somewhat on the type of salt used, but the average effective bismuth preparation should contain from 0.03 to 0.2 Gm. of metallic bismuth in a dose and a course of therapy lasting eight to ten weeks should probably amount to from 0.6 to 2 Gm. of metallic bismuth. The question has also been brought up here, as with mercury, that perhaps it is not the total metallic bismuth that counts as much as possibly the amount of the ionizible metal.

The Council on Pharmacy and Chemistry has definitely gone on record as opposed to intravenous bismuth therapy—witness the recent fatality in the American literature. The therapeutic dose is too close to the toxic dose; therefore, one is limited to intramuscular injections. If one is desirous of a preparation with comparatively rapid absorption and one that probably should be given twice a week, one might employ the thio-bismol in a dose of 0.2 Gm. (metallic bismuth, 0.075 Gm. per dose); or the potassium sodium bismuth tartrate, aqueous solution, depending somewhat on the preparation, but usually with a dose of 0.1 Gm. (metallic bismuth, 0.04 Gm. per dose). Another excellent preparation (though somewhat painful) is sodium bismuth citrate in a dose of 0.068 Gm. of metallic bismuth.

These soluble preparations probably should be given twice a week and therefore are hardly suitable for general office practice or for dispensary work, as the average patient with syphilis cannot be persuaded to visit the physician more than once a week, so one is then forced back on the use of a soluble preparation suspended in oil, or an insoluble salt suspended in oil. These preparations probably will be quite satisfactory. Their absorption and excretion are not entirely regular; nevertheless, the absorption and excretion of metallic bismuth are high enough to give a therapeutic action. Occasionally, one gets sterile abscesses, sometimes even long after the last injection has been given, and it is known that these foci of injection are often not absorbed for many weeks or months. Some believe that this is not a disadvantage with bismuth salts.

Two preparations used in this country and accepted by the Council are the bismuth salicylate, dose 0.12 Gm. in 1 cc. (metallic bismuth, 0.08 Gm. per dose); or the potassium bismuth tartrate, 0.1 Gm. to 1 cc. (metallic bismuth, 0.05 Gm. per dose). Of course, there are many others. These are mentioned as examples.

Recently, especially on the European continent, there has been a turn to the use of what is known as the liposoluble bismuth preparations, the claim being that there is not the danger with these salts of the late abscesses, that the dose is more exact, that the therapeutic result is better, more rapid than the insoluble preparations, and approaching more, from that standpoint, to the soluble preparations. In fact, there is a claim that the liposoluble preparations combine the good points of both the soluble and the insoluble salt, and not their disadvantages. It is too early as yet to answer this important question definitely. One of these preparations, quiniobine, which is bismuth quinine iodide in lecithin and oil, containing 0.006 Gm. of metallic bismuth to a dose of 2 cc., has recently been accepted for New and Nonofficial Remedies.

ERYTHEMA NODOSUM

To the Editor:—Mrs. E. J., aged 44, developed rheumatic pain with slight swelling in both knees. This was shortly followed by the appearance of a small, tender, red area which soon increased in size to quite a large patch, tender on pressure, in one of the lower extremities. In the center of the red areas, hard indurated spots are palpable. The redness extends beyond the hard indurated spots and fades into the skin without elevated margins or coalesence with other areas forming the larger areas. The areas are usually discrete and bilateral. The redness involutes from the center, leaving lumps and hollows in the legs which finally disppear, the leg assuming its normal shape. The red areas appear and disappear at irregular intervals and at first were confined to the legs. A few spots finlly developed in the thighs. After several months, several areas appeared on the forearms, at which time the elbows would ache. At present there is a similar area on the dorsal surface of one of her thumbs, with aching in the distal joint. She has also developed new red indurated tender spots and areas in the lower extremities, including the sole of the feet. There is slight elevation above the normal skin in the center of the areas but not at the edges of the redness. The indurated spots sometimes feel like marbles under the skin, but the redness extends beyond in the skin. On involuting, the center sometimes turns faintly yellowish. Along with the foregoing condition, she has complained of more or less weakness, especially in the knees. In fact, her knees often feel like giving way on going out anywhere. She is able to do most of her house work but has lost about 20 pounds (9 Kg.). However, on account of plumpness she has been trying to reduce. General examination, including the blood and the urine, has been negative except a mottling or stippling throughout both lungs with some enlargement of the perihilar glands. The tonsils are not visible and the teeth are negative for focal infection. The heart is normal. Treatment has consisted of local hot wet applications of mercuric chloride, painting areas with tincture of iodine, relief of symptoms, and salicylates internally for the joint symptoms. In 1925 the patient had an abscess on the left side of the neck. It was opened and the glands were removed by a Salt Lake clinic. The glands were removed at a second operation but, owing to a severe hemorrhage from the incision, the operation was not completed. In 1926 the patient developed another abscess just above the clavicle at the site of the old trouble. This was opened by myself and later I removed the infected gland tissue under a local anesthetic. This was followed by complete healing. A few roentgen treatments of the neck were given. In June, 1929, and again in December, 1929, intra-uterine application of radium was given for metrorrhagia. I have diagnosed the condition as endarteritis and endophlebitis of the capillaries of the skin somewhat of the nature of purpura annularis telangiectodes. Will you please give me your diagnosis and treatment. Could it be embolic from some focus infection?

N. P. PAULSEN, M.D., *Logan,* Utah.

ANSWER.—From the description, it is evident that the diagnosis of emboli deep in the skin is correct. The case is one of erythema nodosum rather than purpura annularis telangiectodes. There must be a source for these emboli and, from the past history, the mouth, probably the teeth or the tonsils, would naturally be suspected. They may still be active, in spite of lack of local evidence. Rest in bed, salicylates and alkalis internally are the chief indications. The heart should be watched for evidence of endocarditis. Small doses of x-rays, one-fourth erythema dose once a week, may hasten the resolution of the nodes. Whether the infectious focus or foci, if discovered, should be attacked during the activity of the disease is a question. It is probably best to avoid interference with them, or to attack them one at a time if considered necessary. Many erythema nodosum cases are tuberculous, and rarely this syndrome is imitated by syphilis.

TREATMENT OF PARINAUD'S CONJUNCTIVITIS

To the Editor:—Will you please give me information on the treatment of Parinaud's conjunctivitis? LELAND BAXTER, M.D., Newark, Ohio.

ANSWER.—The etiology of Parinaud's conjunctivitis is so varied that an answer to this question is difficult. The treatment usually prescribed is that used in any active conjunctivitis; namely, applications of heat every three or four hours followed by instillation into the conjunctival sac of neosilvol (10 per cent solution) or some similar colloidal silver preparation. Along with this, applications of 1 per cent silver nitrate locally are used once daily. Local applications of radium have been used with success in some cases. Because of the systemic involvement, the patient is confined to bed. Fluids are pushed and a light diet is prescribed. The most recent cases have been infections with *Bacterium tularense* and when such is the case a serum of this organism is injected intravenously or intramuscularly.

CARBON DIOXIDE FOR RESUSCITATION OF NEW-BORN

To the Editor:—The February 14 issue of THE JOURNAL contains a paper by Henderson advocating inhalations of carbon dioxide as an aid in resuscitating new-born infants. Page 557 of the same issue contains an abstract of a paper by Kane and Kreiselman who conclude that carbon dioxide is contraindicated. I should appreciate a discussion of this subject in your columns.

A. W. JACOBSEN, M.D., Buffalo.

ANSWER.—The contradiction between Kane and Kreiselman and Henderson is one of opinion, not of facts. Kane and Kreiselman find in the blood of asphyxiated babies from 40.4 to 66.4 per cent by volume of carbon dioxide, in those gasping 41.4 to 55.7, and in those crying 32.4 to 57.0. Henderson says (page 497, column 1): ". . . An asphyxiated child certainly has in its blood a normal or even more than normal pressure of carbon dioxide. . . ." (Column 2): "But after asphyxia more than a normal pressure of carbon dioxide is required to induce the center to become active. Its sensitivity to chemical stimulation is greatly altered. . . ." (Page 498, column 1): "Observations on nonbreathing infants show that under prolonged asphyxia the respiratory center undergoes a loss of sensitivity analogous to that known to be induced by morphine. The center then requires a stronger chemical stimulus than the body can supply. It responds in quite normal fashion, not to the normal pressure of 5.5 per cent of carbon dioxide, but only to 7, 10, 15 or 20 per cent of carbon dioxide, according to the degree to which its sensitivity has been reduced by asphyxia. . . . A similar depression of the respiratory center occurs in the victims of drowning." (Page 499): "The asphyxiated respiratory center of the new-born or of a drowned person requires a much higher pressure of carbon dioxide than does a normal center to stimulate it to respiratory activity."

CHANGING INTESTINAL FLORA

To the Editor:—Recently I noted your answer to a query regarding the treatment of hypertension with albuminuria. You recommended the change of the intestinal flora from a proteolytic to an aciduric flora by means of large amounts of *Bacillus acidophilus* and lactose. Will you please advise me the best form of administration of *Bacillus acidophilus* and a reference to the technic employed in determining this change of intestinal flora from one form to another.

EUGENE S. SUGG, M.D., New York.

ANSWER.—One of the best methods of changing the intestinal flora from the proteolytic type to the aciduric is by the use of a freshly prepared bacillus acidophilus milk. A glassful of this is best taken between meals and at bedtime for a period of two weeks. During this time, meat should be omitted from the diet. The stools are studied by the Gram method to determine the presence and the proportion of gram-positive bacilli. Cultures are made to determine the viability of the bacilli and at the same time to estimate more accurately the percentage of aciduric organisms present. The technic is given in the book on "Intestinal Flora" by Rettger and Cheplin. If an implantation of acidophilus bacilli in the colon does not occur after using bacillus acidophilus milk, one or two tablespoonfuls of lactose should be added to each glass and another period of two weeks of this treatment carried out as before. When the implantation has occurred, the bacillus acidophilus milk may be reduced to two and then, in a few weeks, to one glass a day. This is necessary to maintain the acidophilus organisms in the stool in sufficient amount to keep up an aciduric flora. Reliable brands of bacillus acidophilus milk are included in New and Nonofficial Remedies.

TREATMENT OF SCIATIC NEURITIS

To the Editor:—What is the present-day conception of the treatment of a sciatic neuritis of six months' duration? Clinically, there are pains in the hip, back of the thigh, and the calf. Extension of the thigh on the hip is possible, but painful if beyond the limit of 145 degrees. There is a compensatory deformity indicating that the other extremity is used more. I have been unable to locate the exact etiology, although I have had removed a diseased tooth and diseased tonsils. I have tried bakings along the course of the sciatic nerve and lately milk injections. There has been some alleviation of symptoms, but the process seems slow. What is the value of alcohol injections? What is the value of plaster-of-paris pelvic jackets? What is the value of "stretching"? Please give references to literature on these subjects. Can blood studies throw any light on this condition? Please omit name.

M.D., New York.

ANSWER.—The present-day conception is that sciatic neuritis is a rarity. Probably the majority of so-called sciaticas are of orthopedic origin and referable to disturbances in and around the sacro-iliac joint. Frequently misleading is the fact that roentgen examination is entirely negative or reveals only slight abnormalities when the sacro-iliac joint is involved.

Therapy should be directed to the primary cause of the sciatic pain. This may necessitate traction, application of a cast or a fusion of the sacro-iliac joint. Stretching of the nerve will produce symptomatic relief for a time, as also will injections of cold physiologic solution of sodium chloride into the sheath of the nerve, or epidural injections of physiologic solution of sodium chloride. The value of alcoholic injections into the nerve, which is a mixed motor and sensory nerve, is that it will produce in addition to complete absence of pain a complete paralysis of the muscles supplied. Obviously the value is a minus quantity and many serious law suits have been incurred by physicians using alcohol injections into the sheaths of mixed nerves. Alcohol injection is of value only in a pure sensory nerve, such as the trigeminal, and here it is of only temporary benefit.

A review of sciatic neuritis is given by Morris Grossman and Moses Keschner in the *Archives of Neurology and Psychiatry* **21**:398 (Feb.) 1929.

TREATMENT OF STRABISMUS

To the Editor:—I have a patient, a baby 6 months old, who is developing quite a noticeable internal strabismus of the left eye. The mother has a weak left external rectus but no noticeable squint. What can be done at this time to preserve the normal action of the muscles? Please omit name.

M.D., Washington.

ANSWER.—In all cases of squint in one eye in infants under 1 year of age, the nonsquinting eye should be covered for half a day until the child is a year old. If a competent refractionist is available, an atropine refraction should be done and the full correction prescribed in case the refractive error is more than 1 diopter. The refraction is often satisfactory as early as 9 months of age. The nonsquinting eye should be covered as before and the child should wear the glasses after they are ordered. If no care is given in these cases, amblyopia ex anopsia is the final result and useful vision never develops.

ASTHMA AND SENSITIVITY TO COUGH MIXTURE

To the Editor:—I have a child, aged 3½ years, who has had two attacks of typical asthma about a year apart under the following conditions: About a year ago, during the latter part of a cold, he developed a dry cough with almost every breath. I gave him an ephedrine cough preparation containing ethylmorphine and within a few hours he developed asthma lasting about twenty-four hours. About a year later he had a similar condition during a cold and I again gave him the same cough preparation. Within a few hours he again developed asthma lasting about twenty-four hours. He has had no other attacks of asthma in his life, and during other attacks of dry, irritating cough has had mild sedative cough preparations that after a time relieved him with no asthmatic symptoms. It seems strange to me that both times when ephedrine and ethylmorphine were given he should have asthma. Can you give me an explanation of this, and can you tell me whether the ephedrine and morphine or either could have had anything to do with these asthmatic attacks? Please omit name and address.

M.D., Alabama.

ANSWER.—Two problems present themselves here: First, has the child bronchial asthma? Second, is it sensitive to one of the ingredients of the cough mixture used? To answer the first question the child should be watched to ascertain whether asthma follows the next "cold"; of course, the cough mixture in question is to be withheld and also any other mixture containing morphine or other opium derivatives (ephedrine helps to clear up asthma and therefore cannot be held responsible). It would also help in the diagnosis of asthma if the child has or has had some other allergic manifestation such as eczema, urticaria, food idiosyncrasy or hay-fever; if there was allergy in the family; if a blood count showed eosinophilia, and if positive protein skin tests could be obtained. To answer the second question, the child might be given this cough mixture when it has no "cold" and "feels fine." If it is sensitive to the morphine or one of the other ingredients, symptoms should result in a short time.

OIL FOR OIL-IMMERSION LENSES

To the Editor:—Our attention has just been called to the discussion in Queries and Minor Notes (THE JOURNAL, Nov. 22, 1930) regarding the use of liquid petrolatum for oil immersion objectives.

Even if paraffin oil is selected of the required refractive index (n_D = 1.515), the chances are that the dispersion will not be of the required value. The dispersion of the immersion fluid is a factor as well as the refractive index in correcting high grade objectives.

Of course, in practical work considerable deviations are often allowed from prescribed conditions as laid down for obtaining optimum results. It would seem a questionable procedure, however, to employ highly corrected objectives under conditions which preclude obtaining the superior images which can be produced by these objectives.

CARL ZEISS, INC.,
By W. G. MARQUETTE, New York.

Medical Education, Registration and Hospital Service

COMING EXAMINATIONS

AMERICAN BOARD FOR OPHTHALMIC EXAMINATIONS: Philadelphia, June 8. Denver, July 23. Sec., Dr. William H. Wilder, 122 S. Michigan Ave, Chicago.

AMERICAN BOARD OF OBSTETRICS AND GYNECOLOGY: Philadelphia, June 6. Sec., Dr. Paul Titus, 1015 Highland Bldg., Pittsburgh.

AMERICAN BOARD OF OTOLARYNGOLOGY: Philadelphia, June 8. Sec., Dr. W. P. Wherry, 1500 Medical Arts Bldg., Omaha.

CALIFORNIA: San Francisco and Los Angeles, June 17. Reciprocity Meeting. Sec., Dr. Charles B. Pinkham, 405 State Office Bldg., Sacramento.

CONNECTICUT: New Haven, June 6. *Basic Science.* Address, State Board of Healing Arts, Box 1895, Yale Station, New Haven.

DELAWARE: Wilmington, June 9-11. Sec., Dr. Harold Springer, 1013 Washington, St., Wilmington.

FLORIDA: Jacksonville, June 15-16. Sec., Dr. Wm. M. Rowlett, 812 Citizens Bank Bldg., Tampa.

GEORGIA: Atlanta and Augusta, June 10-12. Sec., Dr. B. T. Wise, Americus.

ILLINOIS: Chicago, June 23-25. Sec., Mr. Paul B. Johnson, Springfield.

INDIANA: Indianapolis, June 23-25. Sec., Dr. Wm. R. Davidson, 413 State House, Indianapolis.

IOWA: Iowa City, June 2-4. Dir., Mr. H. W. Grefe, Des Moines.

KANSAS: Topeka, June 16. Sec., Dr. C. H. Ewing, Larned.

KENTUCKY: Louisville, June 9-11. Sec., Dr. A. T. McCormack, 532 West Main St., Louisville.

MARYLAND: Baltimore, June 16-19. *Regular.* Sec., Dr. Henry M. Fitzhugh, 1211 Cathedral St., Baltimore. *Homeopathic.* Baltimore, June 16-17. Sec., Dr. John A. Evans, 612 W. 40th St., Baltimore.

MICHIGAN: Ann Arbor and Detroit, June 15-17. Sec., Dr. F. C. Warnshuis, 1010 Maccabee Bldg., Detroit.

MISSOURI: St. Louis, June 10-12. Sec., Dr. James Stewart, Capitol Bldg., Jefferson City.

NATIONAL BOARD OF MEDICAL EXAMINERS: Class A Medical Schools having five or more applicants, June 23-25. Ex. Sec., Mr. E. S. Elwood, 225 South Fifteenth St., Philadelphia, Pa.

NEBRASKA: Omaha, June 8-9. Act. Sec., Mr. P. H. Bartholomew, Lincoln.

NEW JERSEY: Trenton, June 16-17. Sec., Dr. James J. McGuire. 28 West State St., Trenton.

NEW YORK: Albany, Buffalo, New York, Syracuse, June 22-25. Chief, Mr. H. J. Hamilton, Room 315, State Education Bldg., Albany.

NORTH CAROLINA: Raleigh, June 15. Sec., Dr. John W. MacConnell, Davidson.

OHIO: Columbus, June 2-5. Sec., Dr. H. M. Platter, 85 East Gay St., Columbus.

OKLAHOMA: Oklahoma City, June 11-12. Sec., Dr. J. M. Byrum, Shawnee.

RHODE ISLAND: Providence, July 2-3. Director, Mr. Lester A. Round, Room 319, State Office Bldg., Providence.

SOUTH CAROLINA: Columbia, June 23. Sec., Dr. A. Earle Boozer, 505 Saluda Ave., Columbia.

TENNESSEE: Knoxville, Memphis and Nashville, June 16-17. Sec., Dr. Alfred B. DeLoach, Medical Arts Bldg., Memphis.

TEXAS: Austin, June 23-25. Sec., Dr. T. J. Crowe, 918-919 Mercantile Bank Bldg., Dallas.

UTAH: Salt Lake City, June 30–July 1. Director, Mr. S. W. Golding, 412 State Capitol Bldg., Salt Lake City.

VERMONT: Burlington, June 17-19. Sec., Dr. W. Scott Nay, Underhill.

VIRGINIA: Richmond, June 23-26. Sec., Dr. J. W. Preston, 720 Shenandoah Life Bldg., Roanoke.

WISCONSIN: Milwaukee, June 6. *Basic Science.* Sec., Prof. R. N. Bauer, 3414 W. Wisconsin Ave., Milwaukee.

WISCONSIN: Milwaukee, June 30–July 1-2. Secretary, Dr. Robert E. Flynn, 315 State Bank Bldg., LaCrosse.

WYOMING: Cheyenne, June 1. Sec., Dr. W. H. Hassed, Capitol Bldg., Cheyenne.

Arizona January Examination

Dr. H. P. Mills, former secretary, Arizona State Board of Medical Examiners, reports the written examination held at Phoenix, Jan. 6-7, 1931. The examination covered 10 subjects and included 100 questions. An average of 75 per cent was required to pass. Eight candidates were examined, 7 of whom passed and 1 failed. Ten were licensed by reciprocity and 2 by the endorsement of credentials. The following colleges were represented:

PASSED

College	Year Grad.	Per Cent
Northwestern University Medical School	(1929)	89.1
Rush Medical College	(1926)	90.1
University of Illinois College of Medicine	(1928) 87.2, (1930)	81.8
University of Louisville School of Medicine	(1929)	85.6, 91.4
Osteopath		85.3

FAILED

College	Year Grad.	Per Cent
University Medical College of Kansas City	(1900)	19.5

LICENSED BY RECIPROCITY

College	Year Grad.	Reciprocity with
Northwestern University Medical School	(1903)	Iowa
Rush Medical College	(1901, 2)	Illinois
Kentucky School of Medicine	(1906)	W. Virginia
University of Louisville School of Medicine	(1911)	Mississippi
Johns Hopkins University School of Medicne	(1911)	Michigan
Kansas City Medical College	(1895)	Missouri
St. Louis University School of Medicine	(1920)	Missouri
Columbia Univ. College of Physicians and Surgeons	(1919)	New York
New York University Medical College	(1896)	New York

ENDORSEMENT OF CREDENTIALS

College	Year Grad.	Endorsement of
College of Medical Evangelists	(1930)	N. B. M. Ex.
Washington University School of Medicine	(1927)	N. B. M. Ex.

Ohio Reciprocity Report

Dr. H. M. Platter, secretary, Ohio State Medical Board, reports 20 physicians licensed through reciprocity with other states at a meeting held Jan. 6, 1931. The following colleges were represented:

LICENSED BY RECIPROCITY

College	Year Grad.	Reciprocity with
General Medical College	(1924)	Illinois
Rush Medical College	(1921)	Illinois
Univ. of Illinois College of Med.	(1915), (1926), (1929)	Illinois
Indiana University School of Medicine	(1929)	Indiana
State University of Iowa College of Medicine	(1929)	Iowa
University of Kansas School of Medicine	(1926)	Kansas
Hospital College of Medicine, Louisville	(1906)	Kentucky
Johns Hopkins University School of Medicine	(1923	Maryland
University of Michigan Medical School (1908) Texas	(1928)	Michigan
Barnes Medical College	(1894)	California
New York Homeo. Med. College and Flower Hosp.	(1930)	New York
Hahnemann Med. College and Hosp. of Phila.	(1921), (1929)	Penna.
University of Pennsylvania School of Medicine	(1909)	Penna.
Meharry Medical College	(1929)	Tennessee
Vanderbilt University School of Medicine	(1928)	Tennessee
University of Palmero Faculty of Medicine	(1923)	Texas

Book Notices

A MANUAL OF SURGERY FOR STUDENTS AND GRADUATES. By Francis T. Stewart, M.D., Surgeon to the Pennsylvania Hospital, and Walter Estell Lee, M.D., Professor of Surgery, Graduate School of Medicine, University of Pennsylvania. Sixth edition. Cloth. Price, $10. Pp. 1307, with 787 illustrations. Philadelphia: P. Blakiston's Son & Company, Inc., 1931.

Although this is a new edition of an old book, the lapse of time since the publication of the fifth edition ten years ago has necessitated rewriting so many parts that almost a new book has been produced. The essential feature of previous editions, however, has been retained, in that the book still remains a manual of surgery, marked by brevity, simplicity and precision of statement. Unessentials and long discussions, rather than important facts, are omitted. The general plan of the book is that usually followed by most textbooks on surgery. The first chapter is on diagnosis. It emphasizes the importance and value of a careful history and how to obtain it. This is followed by precise instruction on how to perform a thorough physical examination as well as on how to evaluate the laboratory aids. Anesthesia is discussed completely in the next chapter, including ethylene, sodium amytal and "Avertin." Local infiltration, block, paravertebral and spinal anesthesia are described in detail. Preoperative and postoperative treatment are considered in the light of present-day thought in the chapter on surgical technic. Bandaging is amply illustrated. Bacteriology, infections, disinfection and inflammation are considered in the usual manner. In the management of burns the tannic acid treatment is described in detail in addition to the standard methods. There is a well illustrated chapter on tumors and cysts, with a separate section laying particular stress on the diagnosis. An extensive section on bone and joints includes the diseases, fractures and dislocations. The conditions concerning which a good deal of knowledge has been gained during the past ten years have been included and adequately described: these pertain chiefly to the thyroid gland, conditions of the chest, blood transfusion, heart and pericardium. Particular mention must be made of the chapter on the extremities, which includes in addition to a discussion of congenital defects and amputations the classic work of Kanavel on infections of tendons and tendon sheaths, with reproductions of graphic illustrations of the anatomy, pathology and surgical treatment of these conditions. The style of the book is excellent. It is written in continuous outline form, the important statements and terms being italicized or printed in boldface type. It is profusely illustrated with excellent drawings, retouched photographs, roentgenograms and diagrams, which

add greatly to the value and clarity of the text. As a whole it is an excellent single volume on surgery, particularly useful to the student in getting at all the details of a subject and to the general practitioner and teacher of surgery for purposes of review.

MILK CONSUMPTION AND THE GROWTH OF SCHOOL CHILDREN. Report on an Investigation in Lanarkshire Schools. By Gerald Leighton, O.B.E., M.D., F.R.S.E., Medical Officer (Foods), and Peter L. McKinlay, M.D., D.P.H., Medical Officer (Statistics). Department of Health for Scotland. Paper. Price, 3d. Pp. 20. Edinburgh: His Majesty's Stationery Office, 1930.

This is a statistical report on the weight and height changes of some 20,000 school children from 5 to 12 years of age, 10,000 of the children receiving daily a supplementary ration of three-fourths pint of milk over a period of four months, while the remaining 10,000 served as controls. Bulked grade A (tuberculin tested) milk was used entirely and in order to investigate the relative values of raw and pasteurized milk, half of the milk was pasteurized. Everything was done to make each group representative and to eliminate variables. The results show that the addition of milk to the diet of school children causes an increase in the rate of growth, both in height and in weight, above that of the controls. There is also some evidence of a beneficial effect in improving the general health and physique. Raw and pasteurized milk were equally efficacious in causing these changes.

LEHRBUCH DER UROLOGISCHEN DIAGNOSTIK. Von Dr. Leopold Casper, a. o. Professor a. d. Universität Berlin, und Dr. Edwin Picard, Chirurg und Urologe. Paper. Price, 46 marks. Pp. 473, with 372 illustrations. Leipzig: Georg Thieme, 1930.

This new textbook on urologic diagnosis presents knowledge and technical data necessary in establishing a urologic diagnosis. The authors discuss shortly and clearly the embryology, anatomy and physiology of the genito-urinary tract, then the examination of the patient, his urogenital secretions and excretions, and the instrumental exploration. They give considerable space to urethroscopy, cystoscopy, transvesical manipulations, and the determination of renal function. Urography, both retrograde and intravenous, is given especial attention. The text is clearly written, the numerous illustrations are excellent, and the editing is good. This work merits particular notice among those interested in urology.

SURGICAL EMERGENCIES IN PRACTICE. By W. H. C. Romanis, M.A., M.B., M.Ch., Surgeon to and Lecturer in Surgery at St. Thomas's Hospital, and Philip H. Mitchiner, M.D., M.S., F.R.C.S., Surgeon in Charge of Out-Patients, Teacher of Operative Surgery and Demonstrator of Anatomy, St. Thomas's Hospital. Cloth. Price, $6. Pp. 608, with 158 illustrations. New York: William Wood & Company, 1931.

This aims to present the salient points in surgical emergencies. The clinical signs, differential diagnosis and preferred method of treatment are included. The main features in the operative treatment that may be of value to the general practitioner are mentioned. The treatment of the patient in shock and collapse is emphasized. Emergency care of various minor injuries is described in some detail. The injuries of the various nerves, muscles and tendons are taken up systematically. Particular attention is given to fractures and dislocations. Various types of acute and chronic infections covering most regions of the body are included. A consideration of surgical emergencies is given to the various regions of the head, neck, thorax, abdomen, genito-urinary system and the extremities. The brief and clear description of the clinical symptoms, together with the differential diagnosis, should help one to recognize operative indications. The surgical treatment suggested here is practical and is based on the extensive experience of the authors.

THE GREEK ELEMENT IN ENGLISH WORDS. By John C. Smock, Ph.D., LL.D. Edited by Percy W. Long, Ph.D. Cloth. Price, $15. Pp. 356. New York: Macmillan Company, 1931.

Of all the sciences, none is more indebted to the Greek for its etymological foundations than medicine. Therefore this book, which presents two comprehensive alphabetical views of the Greek element as a substrate for the English language, has especial significance for physicians. Part I lists English words and roots of Greek origin together with the Greek forms from which they are derived, while part II records the Greek forms entering into our language in conjunction with representative English words to which they have given rise. The English list is by intention representative and not complete, covering about 130,000 out of approximately 1,000,000 words of Greek origin that the English language contains. These enormous totals are the result of a steadily increasing hybridization. As the editor points out, command of about 200 combining forms makes understandable scores of thousands of English words. The author's purpose in publishing this work is to serve this function primarily, and secondly to render readily accessible a Greek vocabulary for further coinage of words to meet the progress of research. The book will satisfy each purpose with perfection. In simplicity of arrangement, style of type and clean press work it could hardly be improved. Altogether it is a monument of scholarly lexicography, of immeasurable value to the cultivated physician who wishes to understand intimately the foundations of his language.

OPERATIVE OBSTETRICS ON THE MANIKIN FOR STUDENTS AND PRACTITIONERS. By Charles B. Reed, M.D., F.A.C.S., Associate Professor of Obstetrics, Northwestern University Medical School, Chicago. Cloth. Price, $4. Pp. 314, with 254 illustrations. Philadelphia: P. Blakiston's Son & Company, Inc., 1931.

This is the first book in English devoted almost exclusively to the use of the manikin for the teaching of operative obstetrics. There is nothing new in the book because practically all the material contained in it may be found in the standard textbooks on this subject. All but a few illustrations were taken from textbooks on obstetrics and the large majority were reproduced from books by foreign authors. A few of the illustrations might well have been omitted; for example, the one showing the use of the Bossi metal dilator, which is a dangerous instrument (p. 209), and the one showing a high lateral episiotomy, which increases the size of the outlet only a little (p. 38). The author illustrates the classic cesarean section as the abdominal operation of choice. He gives the impression that the terms "low cervical cesarean section" and "extraperitoneal section" are synonymous and later says (p. 244) "Many modifications have been devised but all are transperitoneal. The extraperitoneal technic has been abandoned." The last sentence is not correct because many extraperitoneal cesarean sections are still being performed, especially abroad. At present the most popular cesarean section seems to be the low, cervical, transperitoneal type. The author devotes a chapter to operations on the bones, but pubiotomy and other similar operations are now seldom done. Aside from these criticisms the book is well written and beautifully illustrated and the typography is excellent. The extensive experience of the author both as an obstetrician and as a teacher is evident throughout the book.

HANDBUCH DER MIKROSKOPISCHEN ANATOMIE DES MENSCHEN. Herausgegeben von Wilhelm v. Möllendorff. Band VII: Harn- und Geschlechtsapparat. Teil I: Exkretionsapparat und weibliche Genitalorgane. Bearbeitet von W. v. Möllendorff und R. Schröder. Paper. Price, 138 marks. Pp. 574, with 422 illustrations. Berlin: Julius Springer, 1930.

In the case of a subject with so vast a literature as the kidney, it is an achievement to write a monograph which represents an actual contribution, as Möllendorff has done. It will prove indispensable to all students of the structure and function of the kidney. It begins with the histology and cytology of the human uriniferous tubule and then takes up the blood supply and supporting tissue of the organ as a whole. The discussions of renal function are dominated by the theory that all components of the urine are secreted into the capsular space of the malpighian body and concentration occurs throughout the rest of the tubule. There is little effort to explain the differences in structure at different levels of the tubule. Considering the author's familiarity with the amphibian kidney, it is surprising that the work of Nussbaum and of his detractors should not have been justly evaluated. The sections on the structural plan of the human organ, on comparative histology, and on the renal pelvis, ureter and bladder are admirable. In the study of the female reproductive system the individual judgment as to what is normal has played an important part and, in many cases, conditions in normal organs have been disregarded because they did not agree with preconceived ideas. This is because the bulk of the available material is more or less pathologic, normal con-

trols can be obtained only from other primates, and these are difficult to obtain in the sexually mature state. The cyclic changes also greatly complicate the picture and it is essential that the judgment be based on a wide experience. No one has had a richer experience in clinic and laboratory than R. Schröder, and this account, based largely on his own preparations, is the best that has been written. Its value will long continue even though the rapid advances in this field have already invalidated some conclusions, such as the primacy of the ovum in the control of the menstrual cycle. The histology of ovary, tube, uterus and vagina is minutely described in juvenile, mature (pregnant and nonpregnant) and senile states. Development is briefly considered, cytology not at all. The bibliography is extensive but does not approach perfection, as does Möllendorff's.

THE LABORATORY MOUSE: ITS ORIGIN, HEREDITY, AND CULTURE. By Clyde E. Keeler, Sc.D., Research Fellow of the Howe Laboratory, Harvard Medical School. Cloth. Price, $1.50. Pp. 79. Cambridge: Harvard University Press, 1931.

The mouse has become a most valuable laboratory animal. "The teacher of zoology uses variations of the house mouse to demonstrate the laws of heredity, the biological investigator employs them for physiological and genetic studies, the advanced medical man uses them as media in which to culture disease germs or for pathological tests as in the production of sera, and the fancier prizes them for their aesthetic appeal." The important rôle of the mouse in the study of the problems of cancer merits especial emphasis. This little book presents useful information, not heretofore assembled, on the origin, history, distribution, development, hereditary transmission of variations, and methods of breeding of the mouse. The larger part of the book deals with the unit characters and inheritance, normal and abnormal, of the house mouse. The chapter on breeding mice is of practical interest. The book will interest all who use mice in their laboratories.

NUTRITIVE ALLERGIE IN DER PATHOGENESE INNERER ERKRANKUNGEN ALS NÄHRSCHADEN ERWACHSENER. Von Dr. Carl Funck, Facharzt für innere Krankheiten in Köln. Second edition. Paper. Price, 6 marks. Pp. 170. Berlin: S. Karger, 1930.

This is a complicated treatise dealing with nutritive allergy in adults. The author recognizes and grants some importance to the three theses held generally by those caring for allergic diseases: (1) avoidance of the allergen (exciting factor); (2) reduction of threshold by specific and nonspecific desensitization; (3) interruption of shock circles. Just how he accomplishes the last mentioned could not be discovered on careful perusal. His main idea is that food is responsible for practically all cases of allergy; this applies especially to so-called food or alimentary allergy. However, he believes that the methods used by American and French investigators (Rowe, Richet) are curative or helpful in only a small percentage of the total cases. He examines his patients thoroughly, with special reference to the liver and alimentary tract, and he gives a long list of tests done, including tests for urobilin, urobilinogen, blood serum bilirubin and blood sugar, and gastrointestinal roentgenograms. He believes that allergy is due to absorption of foreign proteins through an impaired alimentary mucosa and he therefore stresses the importance of relieving "dyspepsia" by various means, such as catharsis, proper diet and duodenal drainage, for which he claims priority. He emphasizes the importance not only of removing any food from the diet to which the patient is specifically sensitive but also of limiting the amount of protein in general. Overeating is an important cause. People should eat according to their needs. This enables food to be assimilated and not act as foreign material and be harmful. The author tried the desensitization method but failed. He always found that general sensitiveness surpassed the specific one and he found little correlation between skin tests and clinical observations, although tests help. He condemns meat containing much blood, believing this blood injurious, and he demonstrated that it affects the capillaries with local edema and extravasation. He has had little or no success with attempts to change the alimentary flora. He emphasizes that alcohol, coffee and other purine-containing foods, and saponin irritate gastric mucosa and so permit absorption of protein split products before they are fit to be taken into the system and that these products then act as foreign proteins and cause nutritive allergic symptoms. He concludes that the combination of the family physician, good cooking, and proper food and food habits constitute the most important factor in prevention and relief of symptoms due to hypersensitiveness.

Medicolegal

Dormant Duodenal Ulcer Not a Disease

(Silverstein v. Metropolitan Life Ins. Co. (N. Y.), 171 N. E. 914)

The Metropolitan Life Insurance Company insured the plaintiff's husband against the results of bodily injuries "caused directly and independently of all other causes by accidental means." The policy was not "to cover accident, injury, disability, death or other loss caused wholly or partly by disease or bodily or mental infirmity or medical or surgical treatment therefor." The insured, while lifting a milk can, slipped and fell. The can struck him on the abdomen, causing such pain that he was unable to arise. At the operation rendered necessary by the injury, the surgeon found a perforation at the junction of the stomach and the duodenum, through which the contents of the stomach had escaped into the peritoneal cavity. Peritonitis and death followed. The plaintiff sued as beneficiary under the policy, and the insurer, from a judgment against it, appealed to the Court of Appeals of New York, where the judgment was affirmed.

At the site of the perforation there had been a dormant duodenal ulcer, about the size of a pea, the existence of which was unknown to the insured. But for the blow this ulcer would probably have had no effect on his health. We think, said the Court of Appeals, the evidence sustains a finding that this ulcer was not a disease nor an infirmity within the meaning of the policy. Left to itself, it would have been as harmless as a pimple or a tiny scratch. If dormant, as it was found to be, it was not only harmless in itself but incapable of becoming harmful except from catastrophic causes, not commonly to be expected. In a strict or literal sense, any departure from an ideal or perfect norm of health is a disease or infirmity. Something more, however, must be shown, to exclude the effects of accident from the coverage of the policy. The disease or the infirmity must be so considerable or so significant that it would be characterized as disease or infirmity in the common speech of men. A policy of insurance is not accepted with the thought that its coverage is to be restricted to an Apollo or a Hercules.

A distinction must be drawn between a morbid or abnormal condition of such quality or degree that in its nature or probable development it may be expected to be a source of mischief, in which event it may be clearly described as a disease or an infirmity, and a condition abnormal or unsound when tested by a standard of perfection, yet so remote in its potential mischief that common speech would call it not disease or infirmity, but at most a predisposing tendency. An appendix already gangrenous is one thing (*Stanton* v. *Travelers' Ins. Co.*, 83 Conn. 708, 78 Atl. 317, 34 L. R. A. (N. S.) 445), and quite another is an appendix not presently malignant, though a potential source of infection in the future if left in the body. An ulcer as trivial and benign as an uninfected pimple is at most a tendency to an infirmity and not an infirmity itself. The governing principle has been stated with clearness and precision in *Leland* v. *Order of United Commercial Travelers of America*, 233 Mass. 558, 124 N. E. 517:

> If there is no active disease, but merely a frail general condition, so that powers of resistance are easily overcome, or merely a tendency to disease which is started up and made operative, whereby death results, then there may be recovery even though the accident would not have caused that effect upon a healthy person in a normal state.

Criminal Insanity: Validity of Statute Authorizing Commitment.—A statute is valid which provides that a defendant in a criminal case, who is acquitted because he was insane when the offense was committed, may, without a hearing as to his present sanity, be confined as an insane person. A statute is neither unreasonable nor unconstitutional which provides that, when it appears to the trial court that a person so committed

has not fully recovered his sanity, he shall be confined in a hospital for the insane for one year before any application for his discharge shall be entertained by the court. Insanity has so many different forms, and its manifestations are so varied and uncertain, that it is often impossible for the most skilled alienist or astute judge, when the patient appears to be for the time free from the affliction, to detect its existence or to predict the time of its recurrence. Restraint and detention are not for the purpose of punishing the defendant but to permit sufficient time to elapse to enable those who may be called on to pass on his sanity to give their judgment intelligently as to whether or not he has recovered his reason.—*Ex parte Slayback (Calif.), 288 Pac. 769.*

Evidence: Opinion of Expert Witness.—An opinion, when not a mere guess or conjecture, but an inference drawn by a witness of requisite experiential capacity, from adequate data, is evidence, if the inference could not be as well drawn by the jury as by the witness. An inference drawn from given data by a person who is peculiarly qualified to do so by reason of his experience or special skill or learning is no less a fact. There is no logical distinction between opinion testimony, in the sense in which the term is here used, and so-called fact testimony. The values of both are measured by precisely the same standards. The testimony of experts is to be considered like other testimony; it is to be tried by the same tests, and receive just so much weight and credit as the jury may deem it entitled to when viewed in connection with all the circumstances. An instruction of the court, therefore, which disparages or singles out for comment the opinion testimony of expert witnesses is a plain usurpation of the functions of the jury. The jury is the sole and exclusive judge of the credit and weight to be given such testimony.—*Scanlon v. Kansas City (Mo.), 28 S. W. (2d) 84.*

Evidence: Admissibility of Roentgenograms Taken on Antiquated Machine.—A physician, specializing in radiology, testified that he personally took and developed the roentgenograms, concerning which he testified, of the cervical spine of the plaintiff. The roentgen-ray machine that he used, he said, was "not in very good working order"; it was an old machine and had seen its best days. He did not use a fluoroscope. The roentgenograms were, however, he testified, a correct representation of the plaintiff's cervical spine. The appellant, defendant in the court below, contended that under the circumstances stated the roentgenograms were not competent evidence. In the absence of other convincing proof tending to establish accuracy, said the Supreme Court of Illinois, it would certainly be improper to admit roentgenograms shown to have been taken on a machine not in "good working condition," but no absolute rule has been laid down making roentgenograms taken on such a machine inadmissible regardless of other testimony and considerations. In the present case, the evidence was properly admitted.—*Garvey v. Chicago Rys. Co. (Ill.), 171 N. E. 271.*

Insanity: As a Defense for Crime.—"Insanity" is a generic term; it comprehends all kinds and conditions of mental unsoundness and derangement. Every man charged with crime is presumed to be sane until the contrary is established. The burden of showing that such a person is insane is on the accused. It is not discharged by evidence that goes no further than to show him mentally unsound. The evidence must show him to be mentally so unsound at the time of the commission of the crime as not to know the nature and consequences of the act charged. Recurrent insanity or a partial insanity, or mere mental unsoundness, might be proved in a given case, and yet the accused not be exculpated from criminal liability for his acts. —*Ex parte McKenzie (Texas), 28 S. W. (2d) 133.*

Medical Practice Acts: Revocation of License Conditioned on Report of Committee.—Under a statute which authorizes the department of registration to conduct hearings to revoke licenses to practice medicine and to revoke such licenses, but provides that those functions shall not be exercised except on the action and written report of persons designated by the director of the department to take such action and to make such report, the department of registration may institute on its own initiative proceedings for the purpose of revoking a physician's license. The license of a physician may not be revoked unless such revocation is recommended by the committee appointed to report on the case, but the department, without the recommendation of the committee, may issue a citation informing the physician of the charges against him, of the time within which he must answer those charges, and of the time when and the place where a hearing will be held on the complaint. The statute contemplates that the committee appointed by the director of registration shall take action and make a written report on the charges made against a physician after, and not before, the hearing is concluded. A contention, therefore, that the department of registration may not, without the consent of the committee, conduct hearings on a proceeding to revoke a physician's license, and that such consent is necessary to the initiation of a proceeding to revoke a license, is not well founded.—*Moormeister v. Department of Registration of State (Utah), 288 Pac. 900.*

Society Proceedings

COMING MEETINGS

American Medical Association, Philadelphia, June 8-12. Dr. Olin West, 535 North Dearborn Street, Chicago, Secretary.

American Association for the Study of the Feeble-Minded, New York, May 25-28. Dr. Howard W. Potter, 722 West 168th Street, New York, Secretary.

American Association for Thoracic Surgery, San Francisco, July 1-3. Dr. Duff S. Allen, Washington University Medical School, St. Louis, Secretary.

American Bronchoscopic Society, St. Louis, June 6. Dr. Louis H. Clerf, 128 South 10th Street, Philadelphia, Secretary.

American Dermatological Association, Toronto, Canada, June 15-17. Dr. William H. Guy, 500 Penn Avenue, Pittsburgh, Secretary.

American Gynecological Society, Hot Springs, Va., May 18-20. Dr. Floyd E. Keene, 133 South 36th Street, Philadelphia, Secretary.

American Heart Association, Philadelphia, June 9. Dr. Irl C. Riggin, 450 Seventh Avenue, New York, Executive Secretary.

American Laryngological Association, Atlantic City, June 15-17. Dr. George M. Coates, 1721 Pine Street, Philadelphia, Secretary.

American Laryngological, Rhinological and Otological Society, St. Louis, June 3-5. Dr. R. L. Loughran, 33 East 63d Street, New York, Sec'y.

American Neurological Association, Boston, May 27-29. Dr. Henry A. Riley, 117 East 72d Street, New York, Secretary.

American Ophthalmological Society, Asheville, N. C., June 1-3. Dr. Emory Hill, 501 East Franklin Street, Richmond, Va., Secretary.

American Otological Society, Briarcliff, New York, June 17-19. Dr. Thomas J. Harris, 104 East 40th Street, New York, Secretary.

American Physical Therapy Association, Philadelphia, June 8-9. Dr. C. C. Vinton, 585 West End Avenue, New York, Secretary.

American Proctologic Society, Philadelphia, June 7-9. Dr. Curtice Rosser, Medical Arts Building, Dallas, Texas, Secretary.

American Psychiatric Association, Toronto, Canada, June 1-5. Dr. Clarence O. Cheney, Hudson River State Hospital, Poughkeepsie, N. Y., Secretary.

American Society of Clinical Pathologists, Philadelphia, June 7-9. Dr. A. S. Giordano, 604 North Main Street, South Bend, Ind., Secretary.

American Surgical Association, San Francisco, June 29-July 1. Dr. Lincoln Davis, 205 Beacon Street, Boston, Secretary.

American Therapeutic Society, Atlantic City, June 5-6. Dr. Grafton Tyler Brown, 1801 I Street, N. W., Washington, D. C., Secretary.

American Urological Association, Memphis, Tenn., May 18-22. Dr. Gilbert J. Thomas, 1009 Nicollet Avenue, Minneapolis, Secretary.

Association for the Study of Internal Secretions, Philadelphia, June 8-9. Dr. F. M. Pottenger, Monrovia, Calif., Secretary.

Connecticut State Medical Society, Bridgeport, May 20-21. Dr. Charles W. Comfort, Jr., 27 Elm Street, New Haven, Secretary.

Maine Medical Association, Greenville, June 25-27. Dr. Philip Webb Davis, 22 Arsenal Street, Portland, Secretary.

Massachusetts Medical Society, Boston, June 8-10. Dr. Walter L. Burrage, 182 Walnut Street, Brookline, Secretary.

Medical Library Association, New Orleans, May 19-21. Miss Sue Biethan, General Library, University of Michigan, Ann Arbor, Mich., Secretary.

Montana, Medical Association of, Bozeman, July 8-9. Dr. E. G. Balsam, 208 North Broadway, Billings, Secretary.

New Hampshire Medical Society, Manchester, May 19-20. Dr. D. E. Sullivan, 7 North State Street, Concord, Secretary.

New Jersey, Medical Society of, Asbury Park, June 3-5. Dr. J. B. Morrison, 66 Milford Avenue, Newark, Secretary.

New Mexico Medical Society, Albuquerque, May 20-22. Dr. L. B. Cohenour, 219 West Central Avenue, Albuquerque, Secretary.

New York, Medical Society of the State of, Syracuse, June 1-3. Dr. Daniel S. Dougherty, 2 East 103d Street, New York, Secretary.

North Dakota State Medical Association, Aberdeen, S. D., June 2-4. Dr. Albert W. Skelsey, 18 Broadway, Fargo, Secretary.

Pacific Coast Oto-Ophthalmological Society, Los Angeles, May 28-30. Dr. Walter F. Hoffman, 817 Summit Avenue, Seattle, Secretary.

Pacific Northwest Medical Association, Seattle, June 25-27. Dr. Frederick Epplen, Stimson Building, Seattle, Secretary.

Rhode Island Medical Society, Providence, June 4. Dr. J. W. Leech, 369 Broad Street, Providence, Secretary.

South Dakota State Medical Association, Aberdeen, June 2-4. Dr. John F. D. Cook, Langford, Secretary.

West Virginia State Medical Association, Clarksburg, May 19-21. Mr. J. W. Savage, 303 Professional Bldg., Charleston, Executive Secretary.

Current Medical Literature

AMERICAN

The Association library lends periodicals to Fellows of the Association and to individual subscribers to THE JOURNAL in continental United States and Canada for a period of three days. Issues of periodicals are kept on file for a period of five years only. Requests for issues of earlier date cannot be filled. Requests should be accompanied by stamps to cover postage (6 cents if one and 12 cents if two periodicals are requested). Periodicals published by the American Medical Association are not available for lending, but may be supplied on purchase order. Reprints as a rule are the property of authors and can be obtained for permanent possession only from them.

Titles marked with an asterisk (*) are abstracted below.

American J. Medical Sciences, Philadelphia

181: 297-452 (March) 1931

"Thyroid Heart" with Low Basal Metabolic Rate. R. S. Morris, Cincinnati.—p. 297.
Relatively Normal Obese Individuals During and After Dietary Restrictions. H. H. Fellows, New York.—p. 301.
Outbreak of Trichinosis in Pennsylvania. F. C. Aldridge, Wayne. —p. 312.
*Neurasthenia as Manifestation of Emotional Disturbances. H. J. Darmstadter, Philadelphia.—p. 323.
Nitrogen Balance During Dietary Correction of Obesity. J. M. Strang, H. B. McClugage and F. A. Evans, Pittsburgh.—p. 336.
Creatinine Excretion in Abnormal States of Nutrition. H. B. McClugage, G. Booth and F. A. Evans, Pittsburgh.—p. 349.
*Simultaneous Occurrence of Peptic Ulcer and Diabetes or Glycosuria. I. R. Jankelson and A. Rudy, Boston.—p. 356.
*Problems of Cardiac Disease Associated with Urinary Retention. S. G. Stewart, Philadelphia.—p. 362.
Paroxysmal Ventricular Tachycardia. M. C. Andersen, Lincoln, Neb. —p. 369.
*Prognostic Value of Sedimentation Rate in Arthritis: Modification of Technic. A. Weiss, New York.—p. 379.
Urobilinuria in Children with Rheumatic Heart Disease. H. W. Schmitz and E. Sherman, Irvington, N. Y.—p. 392.
*Effect of Irradiated Ergosterol on Composition of Gastric and Pancreatic Juices. V. Bauer, A. Marble, S. J. Maddock and J. C. Wood, Boston.—p. 399.
*Treatment of Meningococcus Meningitis by Cisterna Puncture. T. Goldman and A. G. Bower, Glendale, Calif.—p. 414.

Neurasthenia as Manifestation of Emotional Disturbances.—Darmstadter explains neurasthenia as the emotional reaction of anxiety. Since in the neurasthenic the cause for fear is subconscious, the true nature of these visceral sensations is not understood and they are interpreted as symptoms of disease. Moreover, the patient is unable to dispose of such subconscious fears by rational handling and the neurosis is thereby perpetuated. The attendant uncertainty gives rise to a ceaseless mental struggle to solve a problem, even the nature of which is not clearly known. This futile back-and-forth play of thought preempts the field of attention and renders all else unimportant and without interest. The disinclination for ordinary activities is interpreted as fatigue, while the intellectual disinterest leads to failure of concentration and, hence, of memory. Tremor and restlessness are the motor manifestations of uncertainty of purpose and lack of mental repose. Such manifestations are felt as transient episodes by normal people when facing, consciously, a complicated or baffling problem. It is only when the cause for these disturbances is unknown that they are interpreted as abnormal.

Simultaneous Occurrence of Peptic Ulcer and Diabetes.—Jankelson and Rudy state that peptic ulcer is frequently overlooked in cases of diabetes mellitus. With persistent digestive disturbances, particularly hunger pain, peptic ulcer should be suspected and carefully investigated. The diabetic diet rich in roughage may activate a peptic ulcer. Insulin when necessary should be used with great care in cases with pyloric obstruction. A nondiabetic glycosuria in a case of peptic ulcer is suggestive of an adjacent chronic pancreatitis. Surgery is indicated in the treatment of a peptic ulcer complicated by chronic pancreatitis.

Problems of Cardiac Disease.—According to Stewart there is a group of cases in which obstruction of the lower urinary tract and evidences of cardiac disease are commonly associated. That this may be of primary importance, from a therapeutic standpoint, is illustrated by clinical reports of two cases. The need of adequate urologic histories and examinations in the medical studies on all male patients past middle life is emphasized. A brief statistical review of forty cardiac cases with prostatic obstruction reveals cardiac arrhythmias in a large percentage of cases and widespread arteriosclerosis and coronary sclerosis of an unusually advanced type. Two cases are reported of myocardial failure refractory to rest and digitalis in which bladder retention without obstruction was discovered. The results of constant bladder drainage as a therapeutic measure are discussed. The determination of prognosis in these cases and the evaluation of infection as a complication of catheter drainage are difficult problems which are briefly presented.

Value of Sedimentation Rate in Arthritis.—One hundred and fifty cases of rheumatic fever and twenty-five cases of infectious arthritis were observed by Weiss and the following points noted: The sedimentation rate was high in rheumatic fever and did not return to normal with the disappearance of the arthritic symptoms. The return to normal of three, or 5 per cent, did not occur until from three to seven weeks after the disappearance of complaints. The severity of the joint manifestations was not accompanied by a proportionately high sedimentation rate. The sedimentation rate did not return to normal any faster in mild cases than in the more severe ones. As far as the sedimentation rate gives evidence, cases of acute articular rheumatism do not tend to become chronic. Cases of acute rheumatic fever are not to be discharged before the sedimentation rate reaches normal. The sedimentation in these cases is not due to the amount of anemia that is always present. The sedimentation rate in cases of infectious arthritis is high (from 60 to 80 per cent) and usually does not return to normal, unless the cause can be discovered and removed. This procedure does not differentiate the various types of secondary arthritis, such as tuberculous and gonorrheal arthritis or acute arthritis deformans. The high sedimentation rate is not due to the anemia that is usually present. This procedure is of no diagnostic value in arthritis but is of great help in prognosis and an essential guide in treatment and convalescence. No patient with rheumatic fever should be discharged from close observation until the sedimentation rate has reached normal. Any case that simulates acute rheumatic fever but which shows no tendency for the sedimentation rate to return gradually to normal can be understood to be one of secondary arthritis.

Effect of Viosterol on Gastric and Pancreatic Juices.—Bauer and his associates note that the administration of viosterol to four persons produced a reduction in the free hydrochloric acid secretion in three cases and a questionable reduction in a fourth. Pancreatic enzyme activity was depressed in one person following the administration of viosterol. Viosterol therapy had no effect on the fixed base content of pancreatic juice. It did cause a fall of the chloride ion and a rise in the carbonate ion and thereby a more alkaline pancreatic juice.

Treatment of Meningococcus Meningitis by Cisterna Puncture.—Fifty persons with epidemic meningitis were treated by Goldman and Bower with antimeningococcus serum by lumbar puncture and forty-eight by cisternal puncture. Analysis of data shows that those treated by the cisternal route have at least a 22 per cent better chance to survive than those treated by the lumbar route, and they require only three fourths of the time in the hospital; 30 cc. less serum was required; and an average of two less punctures was necessary.

American Journal of Ophthalmology, Chicago

14: 189-286 (March) 1931

*Concerning Lamellar Membranes of Anterior Surface of Lens. T. B. Holloway and A. Cowan, Philadelphia.—p. 189.
*Management of Orbital Infections. J. Green, St. Louis.—p. 196.
*Orbital Complications in Sinus Disease. D. T. Vail, Jr., Cincinnati. —p. 202.
*Bee Sting of Cornea. C. A. Young, Roanoke, Va.—p. 208.
*Bacteriologic and Immunologic Aspects of Iritis: Relationship to Bacterial Allergy. J. A. Kolmer, Philadelphia.—p. 217.
*Endogenous Infections in Etiology of Acute Iritis. T. G. Schnabel, Philadelphia.—p. 223.
Evaluation of Etiologic Factors in Acute Iritis. T. B. Holloway, Philadelphia.—p. 232.
Hypothesis Regarding So-Called Amblyopia Ex Anopsia. H. McI. Morton, Minneapolis.—p. 239.

Lamellar Membranes.—After a review of the literature, four cases are described by Holloway and Cowan to illustrate disturbances of the zonular lamella of the anterior lens capsule sometimes encountered in relation to injury by heat or other causes.

Management of Orbital Infections.—A group of cases, either of actual orbital infection or simulating such infection, is arranged by Green according to methods of treatment required. In some cases conservative methods were adequate; in others, moderate surgical intervention was necessary, while others necessitated radical measures to limit the infection and save the lives of the patients.

Orbital Complications in Sinus Disease.—Vail states that the fact that two thirds of the orbital wall is of thin bone, which is at the same time the partition of the nasal sinuses, makes the contents of the orbit particularly liable to injury. This injury can assume different forms and result in various lesions which have been described. The fact of prime importance, however, is the necessity for an expert rhinologic examination in all cases of iritis, uveitis, neuroretinitis, retrobulbar optic neuritis, thrombosis of the central vein, vitreous opacities, unilateral epiphora, proptosis, and edema of the lids. Finally it is suggested that one should be ever mindful of nasal pathology in its possible relation to ocular disturbances.

Bee Sting of Cornea.—According to Young, bee stings of the eye cause a marked reaction, both local and general. The local reactions include conjunctivitis, keratitis, hypopyon, iritis, atrophy of the iris, anterior capsular cataract, abscess of the lens, perforation of the globe, glaucoma and change in refraction. The general reactions are diarrhea, loss of appetite, disturbance of heart action, fever, delirium and at times death. The eye may be injured primarily or may be affected months or years later by a bee sting's working its way through the lid and then injuring the globe. Retention of bee stings in the cornea evidently does at times cause irritation, as shown in a case reported. Bee stings are probably never absorbed by the tissue.

Bacteriologic and Immunologic Aspects of Iritis.—Kolmer offers the advice of planning the general or systemic treatment of chronic recurrent iritis along the present lines of treatment of chronic arthritis. In his opinion this should always include a minute search for possible foci of infection by enlisting the services of specialists. If foci are discovered and surgically removed he strongly advises careful bacteriologic examination of the material, especially of abscessed teeth and tonsils, with especial reference to streptococci, along with the careful preparation and administration of autogenous vaccines. In reference to the latter, he believes that better results will be obtained by using vaccines of streptococcic and staphylococcic toxins (filtrates) instead of the usual heat-killed products. At least the former have yielded him much better results during the past two years, although it is necessary to start with small doses cautiously increased at intervals of from three to seven days and given over rather long periods covering a total of at least twelve injections. This would appear to be the most logical and the best method available at present for raising the opsonic and other antibody contents of the blood to a therapeutic threshold for the gradual removal of infection or desensitization of the iris, following surgical removal or drainage of discoverable foci of infection.

Etiology of Acute Iritis.—From a group of cases of uveitis conclusions are drawn by Schnabel as to the probable bearing of focal infection on the ocular disturbance. While many inflammatory attacks in the uveal tract subside promptly after elimination of endogenous infections, some patients have recurrent attacks in spite of such action, and some similar attacks subside without attention to focal infections, even when these are known to exist.

American Journal of Physical Therapy, Chicago

7: 485-520 (March) 1931

Oudin Current. F. P. Lowry, Newton, Mass.—p. 489.
Treatment of Pernicious Anemia by Ultraviolet Rays. D. I. Macht, Baltimore.—p. 493.
Arthritis Deformans and Its Treatment by Manipulation. I. H. Lloyd-Williams, London.—p. 497.

American Journal of Public Health, New York

21: 237-328 (March) 1931

Amelioration of Atmospheric Pollution. H. W. Green, Cleveland.—p. 237.
Hazards of Commercial Health Advertisements. I. Galdston, New York.—p. 242.
Preventive Trend in Practice of Medicine. G. Bates, Toronto.—p. 249.
Preventive Medicine in Private Practice. W. C. C. Cole, Detroit.—p. 255.
European Methods of Attacking Disease Prevention Problem. R. A. Reynolds, San Francisco.—p. 262.
Public Health and Private Practice. G. C. Ruhland, Syracuse.—p. 267.
Responsibility of Personal Physician to Preventive Medicine. W. H. Ross, Brentwood.—p. 272.

Annals of Medical History, New York

3: 127-252 (March) 1931

Touchpieces and Cure of King's Evil. D. Power, London.—p. 127.
Physician of Dance of Death. A. S. Warthin, Ann Arbor, Mich.—p. 134.
Max Johann Sigismund Schultze (1825-1874). T. H. Bast, Madison, Wis.—p. 166.
Louis Lewin, Pharmacologist, Toxicologist, Medical Historian. D. I. Macht, Baltimore.—p. 179.
Refutation of Charges of Cowardice Made Against Galen. J. Walsh, Philadelphia.—p. 195.
Galen. C. W. Burr, Philadelphia.—p. 209.
Landmarks in History of Lead Poisoning. R. H. Major, Kansas City, Kansas.—p. 218.

Archives of Neurology and Psychiatry, Chicago

25: 453-678 (March) 1931

*Cerebral Birth Conditions; Cerebral Diplegia. C. A. Patten, Philadelphia.—p. 453.
*Diffuse Progressive Degeneration of Gray Matter of Cerebrum. B. J. Alpers, Philadelphia.—p. 469.
*Tumor of Brain with Disturbance in Temperature Regulation. I. Strauss and J. H. Globus, New York.—p. 506.
*Brain and Cerebrospinal Fluid in Acute Aseptic Cerebral Embolism. W. Cone and S. E. Barrera, Montreal.—p. 523.
Cerebellar Agenesis. R. C. Baker and G. O. Graves, Columbus, Ohio.—p. 548.
Case of Agrammatism in English Language. A. A. Low, Chicago.—p. 556.
Asymbolia for Pain. P. Schilder and E. Stengel, Vienna, Austria.—p. 598.
*Herpes Zoster Oticus. C. A. McDonald, Providence, R. I., and E. W. Taylor, Boston.—p. 601.

Cerebral Birth Conditions.—Patten believes that the frequent occurrence of bilateral motor involvement together with defect in intelligence indicates something more than the effects of trauma or vascular accidents in the neurologic conditions of the new-born infant. There exists probably a development defect or arrest which concerns either the integrity of the cortical cells or the proper myelinization of the corticospinal tracts and association fibers.

Diffuse Progressive Degeneration of Gray Matter of Cerebrum.—In three cases of this condition reported by Alpers, certain clinical and pathologic features were noteworthy. All three cases presented clinical pictures of Little's disease with subnormal mentality, hyperkinesias, choreo-athetotic movements and epileptiform convulsions, with hypertonicity of the musculature and at times opisthotonos. The patients were 4 months, 8 months and 19 years of age. The anatomic substratum in each case consisted of a marked demyelinization of the cortex, due probably to a failure of development, and a similar though less marked absence of fibers in the basal ganglions. The cortex showed a diffuse loss of ganglion cells in the third lamina. The microscopic examination in the three cases revealed areas of incomplete necrosis scattered diffusely throughout the brain. Though the three cases showed different cell pictures, the author is inclined to look on them as different stages in the same process rather than as three different types of reaction. The lesions described were confined almost entirely to the gray matter, in direct contradistinction to the pathology in diffuse sclerosis, which is largely confined to the white substance.

Tumor of Brain.—Three unusual cases of tumor of the brain are described by Strauss and Globus. Each of the three cases clinically presented difficult localizing problems and lacked convincing evidence of the presence of an expanding intracranial lesion. In case 3 the diagnosis of a tumor of the third ventricle was made during life on the basis of a slowly progressive course, a few objective signs of organic character and an alteration of personality. In case 1 a diagnosis of cerebral

tumor was considered, but the lack of objective signs and the misleading febrile course, with memory defect and somnolence as the only neurologic manifestations, made it almost impossible to reach a definite diagnosis. Each of the three cases ran a febrile course, but an adequate explanation for the elevation of temperature was not advanced. In case 1 the febrile course, added to the apparent tenderness in the right hypochondrium, led to an exploration of the abdomen, with negative results. In case 2, after every other possible source for the fever had been excluded, a cerebral origin was considered, but its localizing value was not recognized. In each of the three cases, a neoplasm in the subthalamic region with variable involvement of the hypothalamus and thalamus was found. Because of the invasive character of the tumor, no limitation to distinct nuclei could be established. Hence the only interpretation that may be drawn is that a lesion in the periventricular zone of the third ventricle and in the tuber cinereum caused a disturbance in the function of the heat-regulating mechanism.

Aseptic Cerebral Embolism.—The material on which the report of Cone and Barrera is based has been gathered chiefly from animals in which aseptic cerebral emboli have been produced and from cases in human beings in which final and complete examination proved that cerebral infarctions were the result of noninfected emboli. The authors noted that polymorphonuclear leukocytes pour out into an aseptically infarcted area of brain and into the overlying meninges eight and a half hours after the vessel to that part is blocked. They increase in number up to the forty-eight hour stage. The microscopic picture is one that suggests an infectious process. At seventy-two and ninety-six hours, these cells show progressive evidences of degeneration. At seven days they have been entirely replaced by compound granular corpuscles. The foregoing time relations are those that occur in the dog. In the cases in human beings available for study the reaction was the same, but the evolution of the process was somewhat less rapid. During the phases at which polymorphonuclear leukocytes are found in the infarcted area, they may reach the cerebrospinal fluid in large or small numbers by way of the perivascular spaces of the vessels in the involved area, by direct invasion of the subarachnoid space from an adjacent area of softening or, when the infarcted area borders the ventricle, by extension directly into the ventricular fluid.

Herpes Zoster Oticus.—McDonald and Taylor draw attention to the importance of the often unrecognized syndrome of geniculate herpes. Eight cases are reported illustrating herpes practically limited to the geniculate zone and others involving adjacent nerve distributions. It should be emphasized that geniculate herpes is by no means rare; that it should be suspected in otalgia and pain generally about the ear; that it usually, but not invariably, is associated with facial paralysis, and that it is often combined with herpes of adjoining nerves.

California and Western Medicine, San Francisco

34: 145-232 (March) 1931

Etiology of Arteriosclerosis. R. D. Evans, Santa Barbara.—p. 145.
Roentgen Rays in Diagnosis of Pregnancy. L. H. Garland, San Francisco.—p. 150.
Tularemia in Cattle and Sheep. J. C. Geiger, San Francisco.—p. 154.
Otitis Media: Management and Treatment. C. E. Harner, Long Beach.—p. 156.
Obstructing Prostate: Surgical Treatment. N. G. Hale, Sacramento.—p. 158.
Care of California's Mentally Sick. G. G. Hunter, Los Angeles.—p. 163.
Radiation Therapy of Carcinoma of Respiratory Tract. O. N. Meland, Los Angeles.—p. 165.
Abdominal Allergy in Infancy. H. E. Stafford, R. G. Watson and L. R. Jacobus, Oakland.—p. 168.
Clinical Classification of Pulmonary Tuberculosis. S. J. Shipman, San Francisco.—p. 172.
Blood Transfusions in Children. P. E. Rothman, Los Angeles.—p. 176.
Functional Disorders Versus Organic Heart Disease in Childhood. A. H. Washburn, Denver.—p. 179.

Illinois Medical Journal, Oak Park

59: 161-240 (March) 1931

Diphtheria and Scarlet Fever. A. Ailes, La Salle.—p. 183.
Roentgen Examination of Appendix. J. T. Case, Chicago.—p. 191.
Active Treatment of Common Cold in Children. W. J. Corcoran, Chicago.—p. 197.
Personal Hygiene and Public Health. G. Koehler, Chicago.—p. 200.
Abdominal Pain in Children. J. F. Carey, Joliet.—p. 202.
Histopathology of Holes in Macula. M. L. Folk, Chicago.—p. 207.
Case of Bone Formation in Choroid. S. J. Meyer, Chicago.—p. 210.
Solitary Choanal Polypus. S. M. Morwitz, Chicago.—p. 213.
New Method of Anesthesia for Alleviation of Pain or Incision of Peritonsillar Abscess. M. R. Guttman, Chicago.—p. 217.
Optic Neuritis: Etiology and Treatment. M. Wiener, St. Louis.—p. 219.
Medicine and the Eye. L. L. Mayer, Chicago.—p. 223.
Fascia Sutures in Repair of Inguinal Hernia. W. J. Pickett, Chicago.—p. 227.
Observations on the New-Born. A. H. Parmelee, Chicago.—p. 229.
Medical and Surgical Cooperation in Pediatrics. C. K. Stulik, Jr., Chicago.—p. 232.
Surgical and Economic Problems of Infantile Paralysis. E. W. Ryerson, Chicago.—p. 234.

Iowa State Medical Society Journal, Des Moines

21: 103-146 (March) 1931

Appendicitis in Children. A. H. Montgomery, Chicago.—p. 103.
Incidence of Syphilis in General Practice. E. Grimes, Des Moines.—p. 108.
The Obstructing Prostate. W. R. Hornaday, Des Moines.—p. 114.
Carcinoma of Ileum. O. N. Glesne, Fort Dodge.—p. 117.
Mechanism of Pain in Peptic Ulcer. F. M. Smith and W. D. Paul, Iowa City.—p. 119.
History and Pathologic Observations in Case of Systemic Blastomycosis. C. N. Cooper, Iowa City.—p. 119.

Journal of Experimental Medicine, Baltimore

53: 299-445 (March) 1931

Precipitin Reaction of Antipneumococcus Serums. H. Sobotka and M. Friedlander, New York.—p. 299.
Number of Open Glomeruli in Acute Mercuric Chloride Nephrosis. R. A. Moore and L. M. Hellman, Cleveland.—p. 303.
Studies on Paratyphoid C Bacilli Isolated in China. C. Tenbroeck, C. P. Li and H. Yu, Princeton, N. J.—p. 307.
*Compensatory Hypertrophy of Spleen. E. M. MacKay and W. S. Polland, San Francisco.—p. 317.
Typhus Fever: Active Immunization Against Typhus Fever with Formalinized Virus. H. Zinsser and M. R. Castaneda, Boston.—p. 325.
Id.: Reduction of Resistance by Diet Deficiency. H. Zinsser, M. R. Castaneda and C. V. Seastone, Jr., Boston.—p. 333.
*Nature of Chill-Producing Principle in Antipneumococcus Serum. A. B. Sabin and G. B. Wallace, New York.—p. 339.
*Further Experiences with Nonspecific Local Cutaneous Immunity to Staphylococcus Aureus: Local Nonspecific Protection. J. A. Toomey and S. O. Freedlander, Cleveland.—p. 363.
*Survival of Vaccine Virus Separated from Living Host Cells by Collodion Membranes. R. S. Muckenfuss, St. Louis.—p. 377.
Influence of Testis Extract on Intradermal Spread of Injected Fluids and Particles. D. C. Hoffman and F. Duran-Reynals, New York.—p. 387.
*Immunization with Mixtures of Poliomyelitis Virus and Aluminum Hydroxide. C. P. Rhoads, New York.—p. 399.
*Skin Reactions Produced by Alternations of Heat and Roentgen Rays at Various Time Intervals. J. A. Hawkins, New York.—p. 405.
*Effects of Intravenous Injection of Colloidal Silver on Hematopoietic System in Dogs. S. S. Shouse and G. H. Whipple, Rochester, N. Y.—p. 413.
*Aplasia of Marrow and Fatal Intoxication in Dogs Produced by Roentgen Radiation of All Bones. S. S. Shouse, S. L. Warren and G. H. Whipple, Rochester, N. Y.—p. 421.
*Combined Effects of Colloidal Silver and Highly Filtered Roentgen Radiation on Hematopoietic System in Dogs. S. S. Shouse and S. L. Warren, Rochester, N. Y.—p 437.

Compensatory Hypertrophy of Spleen.—Following the removal of half of the spleen in young adult rats, MacKay and Polland noted a compensatory enlargement of the remaining portion of about 50 per cent while in mature rabbits no such compensatory hypertrophy followed a similar procedure. It is uncertain whether this difference is due to a difference in the function of the spleen in the two species or to the fact that the rats were infected with *Bartonella muris* while the rabbits were not.

Chill-Producing Principle in Serum.—By means of a test method, which is described, Sabin and Wallace were able to determine absence of the chill-producing principle in antipneumococcus serum. This principle may be present in normal blood or serum, homologous as well as heterologous, and the measures employed to obtain an antibody solution are not essential factors in its formation. The chill reaction may be mitigated by the administration of nitrites and by opium and antipyretics. The reaction has no relationship to anaphylaxis or to certain toxic effects of drawn blood which have been studied by Freund, Starling and others. The chill principle appears to be formed only in blood that has been allowed to stand. Anticoagulants, filtration, dialysis and moderate heating are without effect in removing the principle from the solution containing it.

Immunity to Staphylococcus Aureus. — Toomey and Freedlander state that many substances besides the specific broth filtrates of Besredka can be utilized as topical applications to protect guinea-pigs from the effects of massive doses of staphylococci given subcutaneously. (Plain broth, peptone 10 per cent, peptone 1 per cent, Liebig's meat extract, mustard plaster and normal horse serum.) Where such protection occurs, no matter what the stimulus is, the local skin reaction microscopically is the same as that previously described for broth compresses. Many topical applications of such substances as solution of sodium chloride, water and plain compresses may confer slight protection on an animal. Specific filtrates (Besredka) do not confer protection on the experimental animal if applied at the time of inoculation or thereafter. The local protection described in their experiments is nonspecific.

Survival of Vaccine Virus.—The survival of vaccine virus incubated by Muckenfuss on the opposite side of a collodion membrane from a suspension of fresh minced rabbit kidney was not complete and passage in series was not successful. The degree of survival seemed somewhat greater if dead cells, killed by repeated freezing and thawing, were added to the virus during incubation, although the tissue was able to increase the intensity of the skin reactions. Extracts of dead kidney cells did not increase the degree of survival, as determined by the intensity of the skin reaction. No significant or constant increase in the intensity of the skin reactions resulted from the addition of cysteine hydrochloride to the virus in the dialyzing apparatus.

Immunization with Mixtures of Poliomyelitis Virus and Aluminum Hydroxide. — Preliminary experiments are presented by Rhoads which indicate that poliomyelitis virus can be inactivated by a certain preparation of aluminum hydroxide. This effect is seen at neutrality and at a p_H of 5.5, but not at a p_H of 8.8. Monkeys treated by repeated subcutaneous injections of poliomyelitis virus so inactivated evince immunity as shown by resistance to intranasal instillation and intracerebral inoculation as well as by the neutralizing power of their serum. The treatments that give rise to the immunity do not produce symptoms of disease.

Skin Reactions to Heat and Roentgen Rays.—Areas on the abdomen of the same guinea-pig were exposed by Hawkins to suberythemal doses of soft roentgen rays, to heat of an intensity below the critical dose for the production of burns, and to both radiations in sequence with various time intervals between the exposures. The only effect of exposure to roentgen rays or heat alone was a slight scaling of the skin. The areas exposed to heat and roentgen radiation developed well marked and persistent burns when the exposure to one agent was made within three hours of the other. Scaling of the skin developed when the exposure to one agent was made one day after the other. This scaling was more marked and lasted longer than the scaling produced by either agent alone. The results were the same no matter in which sequence the agents were applied.

Effects of Colloidal Silver on Hematopoietic System. —Shouse and Whipple note that colloidal silver has no specific action on the bone marrow in dogs but is a systemic poison which may cause anorexia, weakness, loss of weight, anemia and death. Hemolysis can be demonstrated after large doses of colloidal silver and the anemia presumably is due in part at least to a destruction of erythrocytes in the peripheral circulation. The colloidal silver, injected intravenously, is deposited as granules almost exclusively in the cells of the reticuloendothelial system after the manner of particulate substances. Repeated injections of nonlethal amounts of this substance are invariably followed by hyperplasia of the bone marrow. In no case was aplasia found. Large single doses of this material cause rapid death in twelve hours or less characterized by pulmonary edema and congestion. An initial increase in the number of erythrocytes and leukocytes may occur following smaller amounts of silver, but repeated injections cause a considerable anemia, without a definite increase in the leukocytes and with no signs of blood plate deficiency.

Roentgen Radiation of All Bones.—Constant observations were made by Shouse and his associates in the acute reaction of dogs to a specified amount of heavily filtered radiation over the bony skeleton. There develops without warning a short and fatal intoxication on the eighth or ninth day after the exposure to the radiation. A profound leukopenia appears after five or six days and is maintained in the peripheral blood (200 leukocytes or less per cubic millimeter) for the two or three days before death. The plates suddenly disappear from the blood smears the day before death. This has some bearing on the life cycle of the plate. All the organs and body structures present extensive and generalized capillary hemorrhage of recent origin. The substance of the spleen and lymph nodes is greatly reduced and the germinal centers are visible only as remnants. The erythrocyte hematocrit reading drops from about 50 per cent or normal to approximately 40 per cent. The bone marrow is depleted of all its cells except the connective tissue and fat cells, blood vessel endothelium, phagocytes filled with brown granules, and occasional normoblasts.

Effects of Colloidal Silver and Roentgen Radiation on Hematopoietic System.—According to Shouse and Warren, the individual destructive effects of colloidal silver and heavily filtered radiation are still evident when the two are used together. The combined effects are cumulative in that small doses are more destructive than when either is used alone. The leukocytosis resulting from the injection of the colloidal silver does not afford protection against the terminal leukopenia following the irradiation.

Journal of Industrial Hygiene, Baltimore

13: 1-20 (Jan.) 1931

National Institute of Health of United States Public Health Service. H. S. Cumming, Washington, D. C.—p. 1.

Kata Thermometer as Anemometer. T. Bedford and C. G. Warner, London.—p. 4.

Rational Method for Calculating Records Obtained by Means of Owens' Jet Dust Counting Apparatus. M. Kagan and W. Broumstein, Moscow.—p. 10.

Journal of Urology, Baltimore

25: 247-350 (March) 1931

*Principles of Intravenous Urography. A. von Lichtenberg, Berlin, Germany.—p. 249.

*Value of Uroselectan in Renal Lithiasis. W. F. Braasch, Rochester, Minn.—p. 265.

*Value and Limitations of Uroselectan as Aid in Urologic Diagnosis. H. G. Bugbee and A. J. Murphy, New York.—p. 275.

*Comparative Value of Uroselectan to Cystoscopic Pyelography. R. H. Herbst, Chicago.—p. 287.

*Uroselectan in Urinary Tuberculosis. O. S. Lowsley, New York.—p. 293.

Chemistry of Uroselectan. A. Binz, Berlin.—p. 297.

Intravenous Urography in Diagnosis of Renal Tuberculosis. T. Sweetser, Minneapolis.—p. 311.

Study of Blood Pressure in Prostatism: Cardiovascular Changes. M. I. Seng, Montreal.—p. 313.

*Electrocardiographic Studies in Prostatic Obstruction. C. M. Bacon, H. L. Kretschmer and L. Woodruff, Chicago.—p. 335.

*Causes of Death Following Treatment for Relief of Prostatic Obstruction. G. J. Thomas, E. W. Exley and W. A. O'Brien, Minneapolis. —p. 343.

Principles of Intravenous Urography.—Von Lichtenberg states that from a clinical point of view intravenous urography is indicated in the following conditions: 1. Those cases in which, for anatomic and pathologic or technical reasons, it is impossible to use cystoscopy, ureteral catheterization or instrumental pyelography. 2. In those cases of ureteral obstruction in which the pyelographic solution cannot be injected beyond the obstruction. 3. In those cases in which instrumental pyelography carries a risk for the patient. This group of relative indications can necessarily be enlarged to include those cases in which one does not wish to subject the patient to instrumental procedures and in which one can obtain sufficient information by means of intravenous pyelography.

Value of Iopax in Renal Lithiasis.—Braasch has reviewed a series of forty cases of proved renal lithiasis in which intravenous urography was done, and in most of the cases cystoscopic examination with retrograde urography also was employed. It was found that intravenous urography is of particular value in (1) identification of shadows, (2) determination of the intrarenal situation of shadows, (3) ascertaining the differential renal function, (4) demonstration of coincident disease or anomaly in the affected kidney and (5) determination of the functional capacity and disease or abnormality in the other kidney. In identification of renal shadows, intravenous urography has no particular advantage over the retrograde method, except that it can be used as a routine in many cases in which one might

hesitate to employ cystoscopy. Shadows that are seemingly intrarenal or extrarenal on interpretation of the original films often will prove to be the opposite. On the other hand, small shadows in the renal pelvis, which do not cause stasis, occasionally may remain unidentified by intravenous urography because of lack of detail in the minor calices. In fact, the intravenous urogram seemed to show that suspected shadows were extrarenal in several cases in which retrograde pyelography demonstrated that they were intrarenal. In other cases, shadows apparently intrarenal in the intravenous urogram were later shown to be extrarenal. In doubtful cases, therefore, both methods of pyelography should be employed.

Iopax in Urologic Diagnosis.—In a series of twenty-six cases, valuable data have been obtained by Bugbee and Murphy through the use of iopax. The following lesions were demonstrated: the absence of a kidney; in two cases, the presence of a nonfunctioning kidney; in four instances, marked destruction of kidney tissue in pyonephrosis; nephrolithiasis without kidney destruction; extra-urinary shadows; an outline of the upper tract in cases in which a cystoscopic examination could not be made; the presence and absence of ureteral stricture; valuable data in children in whom cystoscopy might be avoided; guidance in outlining operative procedures; interesting facts regarding the dynamics of kidneys and ureters. On the other hand, only in those cases in which a cystoscopic examination was mechanically impossible and in one child in whom the symptoms did not warrant surgery at this time has the information obtained by this method been sufficient without cystoscopic confirmation; so that the authors feel strongly that, while a remarkable addition has been made to the field of urology through the painstaking work of the pioneers in this technic, yet it is primarily a method of corroboration, to be employed as a supplement to the present known methods of urologic diagnosis, except in the limited number of cases in which cystoscopic manipulation is impossible. Here it gives valuable data otherwise unavailable; but when such data are unsupported by cystoscopic information, the interpretations must be made with extreme care and conservatism.

Iopax in Cystoscopic Pyelography.—According to Herbst, iopax may be used in practically all cases in which the cystoscopic pyelogram is used and, in addition, in some cases in which the retrograde method is inadvisable or impossible. Iopox is particulary useful in children; in upper urinary tract retention, such as hydronephrosis and pyonephrosis; in impacted stone in the ureter; in ureteral stricture and spasm of the ureter; in some cases of renal tuberculosis; in cases in which conditions of the lower urinary tract offer obstacles or danger to the passage of the cystoscope, such as obstruction of the bladder neck, acute infections of the lower urinary tract and anomalies. It is particularly useful in cases of ectopic ureteral orifices and when the orifices are not accessible because of surgical change of position; in cases of contracted bladder; in severe cystitis, and in hemorrhage making visualization of the ureteral orifices difficult. It is useful also in the study of the movable and ectopic kidney and functional activity of the urinary tract. Again, this procedure offers an opportunity for bilateral visualization without the danger, be it slight, that exists when this is carried out with the cystoscope. It will also help to eliminate the mistakes in interpretation caused by changes and artefacts produced by over or under distention and the presence of a hypertonic solution of sodium iodide. Conditions in which iopax is not satisfactory and which can be better studied by the cystoscopic method are tumor of the kidney, polycystic kidney and early renal tuberculosis. In comparing the value of the two methods, one must consider the possibility of idiosyncrasy to iodine and a possible danger in certain conditions such as hyperthyroidism, advanced renal insufficiency, acute renal inflammations and cardiac decompensation. Iopax has been most useful in the author's hands in the study of upper urinary tract retentions. Here it gives an opportunity to study the degree of retention as well as the amount of loss of parenchyma and eliminates the not uncommon error of overdistention and underfilling seen at times with the cystoscopic pyelogram. Iopax will be especially valuable in urologic diagnosis of children. Here it will often take the place of the cystoscope and ureteral catheter when pyelography is desired, doing away with a procedure that frequently requires a general anesthetic and the many difficulties connected therewith.

Iopax in Urinary Tuberculosis.—In a series of forty-five cases, Lowsley has found intravenous pyelography with iopax to be of great assistance particularly in tuberculosis of the urinary tract. In children with lesions of the upper tract, cystoscopy even with the Butterfield child's cystoscope requires an anesthetic, thus making it a major surgical procedure. By the use of iopax, delay in visualization and excavation of the kidney cortex may be noted as well as granular encroachment on the lumen of the kidney pelvis and ureter. In this manner a good idea of the presence and extent of tuberculous lesions may be estimated. Most cases of urinary tuberculosis come to the surgeon because of vesical irritation, as symptoms occur early, persist throughout the disease and are not amenable to any form of treatment except in rare instances. The vesical irritation that accompanies these symptoms makes cystoscopy painful and in some instances dangerous, as several cases of vesical rupture have been reported. Various types of anesthesia are used, all of which are accompanied by a certain element of danger. Also there is edema of the vesical mucosa, particularly in the region of the ureteral orifices, which makes catheterization of the ureters difficult and in some instances impossible. In such cases, iopax is of inestimable value.

Prostatic Obstruction.—It is shown by Bacon and his associates that, in patients who have severe cardiac disease obvious to physical examination, the electrocardiogram can be of little added value in indicating the preoperative risk. However, in certain elderly persons whose hearts are reported as normal to physical examination by the internist the electrocardiogram may show definite evidence of myocardial disease, a fact that should warn the surgeon of the possible danger in attempting an operation particularly under general anesthesia.

Death Following Treatment of Prostatic Obstruction.—A study made by Thomas and his associates of the preoperative and operative treatment, together with the necropsy observations in thirty patients having hypertrophy of the prostate, revealed that any type of catheter drainage of the bladder may introduce infection into the urinary tract and, by traumatizing the urethra, introduce infection into the blood stream. In 93 per cent of the necropsy records studied, old or recent urinary infection was a major factor in the production of death. It is significant that no patient in this group had suprapubic bladder drainage only, and that 93 per cent had either periodic or permanent urethral catheter drainage. Cardiovascular disease without urinary infection was a factor in producing death in only 7 per cent of the cases. Bronchopneumonia was the cause of death in fourteen cases, or 46 per cent. In only two cases in this group did the necropsy fail to reveal evidence of a severe genitourinary infection. Forty per cent of the total number of deaths occurred during the preoperative treatment. The average number of days of preoperative urethral catheter drainage was nineteen. No conclusion could be drawn from the study of the duration of catheter drainage. The average number of postoperative days in the operated group before death occurred was fourteen. The average number of days in this group which had urethral catheter drainage was twenty-six. In no instance was hemorrhage a factor in the production of death. The authors believe that the infection present in the urinary tract, together with infection that may be introduced by instrumentation, causes a bacteremia which is responsible for the majority of deaths occurring during the treatment of these patients.

Kentucky Medical Journal, Bowling Green

29: 119-168 (March) 1931

Dilation and Curettage of Uterus. F. L. Koontz, Louisville.—p. 122.
Tonsillectomy. L. Jacobs, Covington.—p. 124.
Intravenous Medication. B. B. Keys, Murray.—p. 127.
Spinal Puncture. B. W. Smock, Louisville.—p. 130.
Abdominal Pain in Acute Illness from Other Than Abdominal Viscera. C. G. Daugherty, Paris.—p. 134.
Abdominal Pain from Causes Other Than Lesions of Abdominal Viscera in Chronic Illness. C. G. Lucas, Louisville.—p. 136.
Three Cases of Lues. R. R. Elmore, Louisville.—p. 141.
Warts. W. J. Young, Louisville.—p. 142.
Case of Periarteritis Nodosa. W. B. Troutman, Louisville.—p. 144.
Allergy. F. M. Stites, Hopkinsville.—p. 145.
Surgical Treatment of Peptic Ulcer. I. Abell, Louisville.—p. 151.
Diagnosis and Treatment of Diseases and Accidents of Upper Air Passages by Bronchoscope. G. C. Hall, Louisville.—p. 158.
Ossification of Choroid. S. G. Dabney, Louisville.—p. 164.

Laryngoscope, St. Louis

41: 81-156 (Feb.) 1931

Inflammation of Frontal Sinus: Conservative and Endonasal Operative Treatment. V. Fruhwald, Vienna, Austria.—p. 81.
Fracture of Frontal Sinus and Ethmoid Through Dura, Orbit and Maxillary Sinus. J. D. Seiberling, Philadelphia.—p. 93.
Antrotomy in Children During Tonsillectomy. S. Stein, New York. —p. 97.
Retropharyngeal Abscess Complicating Mastoiditis in Adult. A. G. Beyer, Cincinnati.—p. 105.
Treatment of Ear Conditions Through Eustachian Tubes; Consideration of Indications and Difficulties. M. V. Miller, Philadelphia.—p. 108.
Pork Bone in Bronchus Causing Symptoms Simulating Pulmonary Tuberculosis. C. D. Sneller, Peoria, Ill.—p. 117.
Nonspecific Protein Therapy in Nose, Throat and Ear Affections. J. C. Beck.—p. 119.
New Method of Controlling Hemorrhage After Nose and Throat Operations. T. C. Davis, Philadelphia.—p. 125.
Control of Hemorrhage in Tonsil Operations. C. Kaplan, Brooklyn. —p. 129.
Modern Aural Irrigator with Automatic Control. G. W. McAuliffe, New York.—p. 132.
Chronic Subglottiditis. R. Kramer, New York.—p. 136.

Maine Medical Journal, Portland

22: 17-36 (Feb.) 1931

Electric Excision of Prostatic Obstruction by Transurethral Route Through Endoscope. C. N. Peters, Portland.—p. 18.
The Physician: Attitude in Respect to Public Questions. A. W. Plummer, Lisbon Falls.—p. 22.
Young Man Looks at Medicine. J. M. Parker, Portland.—p. 26.
Serum Diagnosis in Syphilis. W. A. Hinton, Boston.—p. 28.

Medical Journal and Record, New York

133: 209-260 (March 4) 1931

Office Equipment for Practice of Gastro-Enterology. J. L. Kantor, New York.—p. 209.
Modern Conception of Deafness. H. Hays, New York.—p. 213.
Psychic Value of Music and Color in Infant and Child Nutrition. G. D. Scott, New York.—p. 216.
Cardiac Decompensation with Edema: Value of Salyrgan in Treatment. J. Schneyer, Philadelphia.—p. 220.
Hypertension and Chronic Interstitial Nephritis. S. Gorsky, Philadelphia. —p. 223.
Fable of Old Man Psychiatry: The Medical Village Butt. E. H. Williams, Los Angeles.—p. 225.
Cancer of Stomach. M. Golob, New York.—p. 227.
Carcinoma of Breast in Male: Metastases to Internal Organs, Skeletal System and to Skin. A. Bortin and L. J. Bolton, Brooklyn.—p. 230.
Early Diagnosis of Rectal Cancer. J. F. Montague, New York.—p. 234.
Incidence and Cause of Industrial Cancer. L. D. Bristol, New York. —p. 236.
Metastatic Carcinoma in Brain Following Primary Carcinoma of Breast. E. Schweitzer, New York.—p. 239.
Working Hypothesis for Study of Cancer. D. G. Dudley, Endicott. —p. 240.
Injection Treatment of Inguinal Hernia. R. Wolfe, Brooklyn.—p. 243.
Cutaneous Medicine and Surgery: Normal Skin, Nail and Hair. H. Goodman, New York.—p. 246.

Nebraska State Medical Journal, Norfolk

16: 85-128 (March) 1931

Why is Mortality of Appendicitis Increasing? B. B. Davis, Omaha. —p. 85.
Pulmonary Tuberculosis Without Lung Symptoms. M. J. Breuer, Lincoln.—p. 90.
Surgical Intervention in Infections of Upper Urinary Tract. A. D. Munger, Lincoln.—p. 94.
Surgical Management of Pulmonary Tuberculosis. C. Emerson, Lincoln. —p. 97.
Prevention and Therapy of Puerperal Sepsis. W. C. Becker, Lincoln. —p. 101.
Sympathetic Ganglionectomy in Treatment of Vascular Diseases. W. D. Abbott, Des Moines, Iowa.—p. 104.
Otolaryngology and General Practitioner. L. C. Knight, Lincoln.—p. 108.
Experiences in Porto Rico. R. S. Wycoff, Lexington.—p. 111.

New England Journal of Medicine, Boston

204: 529-582 (March 12) 1931

Program for Control of Crime in State of Massachusetts. A. W. Stearns, Boston.—p. 529.
Asepsis: Possible Interference with Physiology of Repair. H. L. Johnson, Boston.—p. 535.
Endoscopy and Its Indications. A. D. Rood, Springfield.—p. 538.
Carrier of Tubercle Bacilli. C. Floyd and H. A. Novak, Boston.—p. 543.
Bilirubin Liver Function Test: Modification of Method. I. R. Jankelson and S. L. Gargill, Boston.—p. 547.
Intracranial Aneurysm: Case. R. G. Hahn, Boston.—p. 549.
Comparative Results of Two Albumin Tests. R. A. Behrman, Boston. —p. 551.
Progress in Orthopedic Surgery. W. A. Rogers and E. F. Cave, Boston. —p. 553.

New York State Journal of Medicine, New York

31: 261-324 (March 1) 1931

Evaluation of Newer Methods of Treating Syphilis. M. B. Parounagian, New York.—p. 261.
Modification of Double Circle Operation for Pendulous Breasts. C. F. Dowkontt, New York.—p. 264.
Clinical Types of Ocular Pathology Due to Disease of Paranasal Sinuses. L. C. Peter, Philadelphia.—p. 267.
Medicine of the Future. G. W. Crile, Cleveland.—p. 272.
End-Results in Eclampsia. A. C. Beck, Brooklyn.—p. 274.
Health Officer's Duty in Tuberculosis Control. R. E. Plunkett, Albany. —p. 276.
Diagnosis of Intraperitoneal Hemorrhage Following Trauma. A. R. Sullivan, New York.—p. 277.
Essentials in Fractures. J. J. Moorhead, New York.—p. 280.
Undulant Fever. B. E. Chapman, Broadalbin.—p. 283.
Mucocele of Appendix. C. D. Squires, Binghamton.—p. 285.

Philippine Islands M. Assn. Journal, Manila

11: 1-36 (Jan.) 1931

Blood Plasma Lipoids in Leprosy. E. M. Paras, Culion.—p. 1.
Typhoid Meningitis in Child: Case. C. Monserrat, Manila.—p. 10.
Incipient Pulmonary Tuberculosis. W. Vitug, Manila.—p. 16.
Observations on National Handicap. T. J. Brennan, Baguio.—p. 24.

Surgery, Gynecology and Obstetrics, Chicago

52: 665-792 (March) 1931

*Surgical Importance of "Brown Fat." E. S. J. King, Melbourne, Australia.—p. 665.
*Infective Granuloma: Nonspecific, Chronic, Tumor-Like, Productive Inflammations of Gastro-Intestinal Tract. H. E. Mock, Chicago.—p. 672.
*Replacement Lipomatosis of Kidney. A. A. Kutzmann, Los Angeles. —p. 690.
*Acute Intestinal Obstruction. A. Ochsner, New Orleans.—p. 702.
*Effect of Injections of Female Sex Hormone (Estrin) on Conception and Pregnancy in Guinea-Pig. G. L. Kelly, Augusta, Ga.—p. 713.
*Diagnostic Value of Uterosalpingography in Preadolescent Ovarian Torsion. R. K. Finley, Dayton, Ohio.—p. 723.
Surgical Treatment of Tuberculous Cavities of Lungs with Filling—"Plombe." R. Nissen, Berlin, Germany.—p. 732.
Resection of Thoracic Portion of Esophagus for Carcinoma. C. Eggers, New York.—p. 739.
*Congenital Cystic Disease of Lung. L. Eloesser, San Francisco.—p. 747.
*Epithelization of Bone Cavities and Calcification of Fibrous Marrow in Chronic Pyogenic Osteomyelitis. A. Brunschwig, Chicago.—p. 759.
Serious Intra-Abdominal Trauma Without External Evidence of Violence. F. R. Fairchild, Woodland, Calif.—p. 767.
*Radical Cure of Hallux Valgus (Bunion). A. L. Soresi, New York.—p. 776.
Acute, Perforated Ulcers of Stomach and Duodenum. J. W. Hinton, New York.—p. 778.

Surgical Importance of "Brown Fat."—King states that in 1902 Hatai described, in human embryos, the presence of an interscapular gland corresponding to the so-called hibernating gland of the lower animals. This consisted of a narrow paired organ lying in the neck and extending into the scapular region. This hibernating gland in the hedgehog had been well described in 1893 by Carlier. It thus appeared that in the human being there were two forms of fat: the ordinary yellow fat and another variety which was present only in the fetus and in young children. In 1908, however, Bonnot investigated the question thoroughly and found that this less common tissue extended over a much larger area than that stated by Hatai. He also found that it did not disappear entirely after childhood but could be found in the adult. As a result of this description, the tissue is sometimes called the gland of Bonnot. It is well developed in the new-born, and in adults it is a lobulated, pinkish structure, and on section it has the appearance of gland tissue. In the cadaver it is dark brown. Its distribution is irregular and it may be found in the neck, axilla, breast, and the subpleural and perirenal tissues. Bonnot concluded that the "gland" was constant in mammals, corresponded to the hibernating gland of the rodents, and that its probable functions were the storage of fat, as a scavenger of fat and as a blood forming organ. The size of the gland varies with the state of nourishment of the individual; during development it differentiates into hemolymph glands, which are known to produce blood corpuscles. The cells of the gland, at times, are observed to contain blood pigment. This fat tissue has been designated brown fat from its color, mulberry or moruloid fat from its microscopic appearance, and the interscapular gland, from its position in animals. In three cases described by the author, a nodule developed which micro-

scopically showed a picture that suggested brown fat. In one of the cases the position in the supraclavicular region was such as would be expected for the occurrence of such a lesion. Brown fat, in this site, is a well recognized anatomic and pathologic entity. In the second case, the presence of typical brown fat is of importance, since it establishes another hitherto undescribed site for the occurrence of this form of tissue—the posterior aspect of the anterior abdominal wall.

Infective Granuloma.—Mock is of the opinion that infective granulomas are far more frequent than the literature on this subject would lead one to believe. The condition is directly due to a low grade infection causing an impairment to the circulation or to an impairment of the circulation followed by a low grade infection. In either case there is an inflammatory reaction characterized by a necrosis and a reparative process acting and reacting with a gradually increasing building up of an inflammatory mass until a granuloma reaching even the size of a coconut has formed. Occasionally the reparative process predominates early in the condition and one finds a constricting or stenosing granuloma. A nucleus for the foundation of an infective granuloma may be formed by infections within the gastro-intestinal tract, such as appendicitis or diverticulitis; ulcers either within the stomach or in the intestine; foreign bodies within the bowel lumen, in the wall of the bowel or lying in the abdomen, such as purse-string sutures, laparotomy pads, or instruments left in the abdomen; or splinters penetrating into the abdomen. Trauma is a frequent cause for the condition, especially trauma which results in a tear of the mesentery, which allows foreign material to remain in the abdominal cavity or which may cause an undiagnosed and nonfatal perforation or laceration of the intestinal wall. Extraperitoneal inflammations may spread to or involve the gastro-intestinal tract in the granulomatous mass. The diagnosis of carcinoma is most frequently made, when an infective granuloma exists. Many cases of inoperable carcinoma of the gastro-intestinal tract that have recovered have undoubtedly been granulomas. A more careful study of all cases of infective granuloma will enable an increasing number of correct preoperative diagnoses to be made. No tumor mass of the gastro-intestinal tract, considered at operation to be malignant and inoperable, should be abandoned without removal first of a small section for biopsy. This will prevent a fatal prognosis being made of cancer when later the patient may recover because the condition was infective granuloma. The etiology, the similarity in the chain of symptoms, the characteristic observations at operation, and the ability to make the diagnosis on histologic study warrant considering infective granuloma as a definite disease entity. In the presence of a tumor mass within the abdomen, the possibility of an infective granuloma should always be taken into consideration in making the diagnosis.

Replacement Lipomatosis of Kidney.—A diligent search by Kutzmann of the literature revealed but thirty-two proved cases of lipomatosis of the kidney, and, with the personal case reported, the total is brought to thirty-three cases. Replacement lipomatosis of the kidney is always associated with a kidney infection, usually intense and with calculous disease in 79 per cent of cases. Replacement lipomatosis of the kidney has a nearly equal distribution as to sex and side involved. Clinically there are no pathognomonic signs or symptoms. The earlier cases were found at necropsy, while recent specimens have been found in surgically removed kidneys. The pathogenesis is on a theoretical basis of replacement. The process is probably one of invasion by the perirenal, peripelvic and hilus fat along the large vessels through the renal hilus, following a destruction of the renal parenchyma by calculosis and infection. Treatment is directed to the associated condition and usually is nephrectomy, since these kidneys are painful, badly infected, and functionless.

Acute Intestinal Obstruction.—Ochsner believes that in all cases of ileus there are varying degrees of vascular occlusion; in the high obstructions the vascular disturbance may be intramural. The prognosis in ileus depends on the length of time that has elapsed since the onset, the location of the obstruction and the previous therapy. Blood chemistry determinations are of value for prognosis and proper treatment. Symptoms and signs of ileus are usually characteristic. Plain roentgenograms of the abdomen with the patient in the upright position without the administration of contrast mediums are of value in diagnosing ileus. Early operation or relief of obstruction in ileus is imperative. Enterostomy is of value in both the adynamic and the obstructive types of ileus, provided enterostomy alone is not employed. Splanchnic block, preferably by means of a splanchnic analgesia (Kappis) is of distinct value in adynamic ileus. Drugs are of little or no value in the treatment of ileus.

Effect of Female Sex Hormone on Conception and Pregnancy.—Kelly found that small doses of female sex hormone injected into female guinea-pigs immediately after copulation for a period of several days will prevent conception in all cases in which an adequate dosage is used. The minimum dosage required is about 10 to 15 rat units. Interruption of pregnancy in this animal when about two weeks pregnant can be accomplished in practically all cases with a total dosage of 100 rat units. For animals pregnant about four weeks the gestation can be terminated by adequate dosage. An optimum amount for this stage is from 100 to 150 rat units. (With much larger doses the pregnancy is usually terminated by abortion, but the maternal mortality is high.) In females pregnant from six to eight weeks, injections of doses varying from 300 to 1,150 rat units invariably bring an end to normal pregnancy and almost invariably cause the death of the mother. The death of the fetus after injections seems to be related to marked atrophic changes in the chorionic villi, resulting from pressure due to excessive hyperemia or other cause. The cause of death of the mother is problematic. The results with control animals indicate that the abortions and fetal deaths do not result from the injected material or from handling. Administration of as high as 600 rat units of estrin in six days to male and nonpregnant female guinea-pigs is not incompatible with the life and health of fully grown animals. The conclusion seems warranted that an excess of female sex hormone in the blood over the corpus luteum hormone is incompatible with conception and with the continuance of normal pregnancy in the guinea-pig.

Diagnostic Value of Uterosalpingography. — Finley reports a case of torsion of an ovarian cyst in a child, aged 9 years, which was diagnosed by uterosalpingography. A review of the literature on torsion of the adnexa before puberty is presented. All cases reported since 1920 to the present date are collected and classified. The practicability of uterosalpingography as a diagnostic aid in certain of these cases is pointed out.

Congenital Cystic Disease of Lung.—Four cases of congenital cystic lung are described by Eloesser. Solitary congenital cysts are often mistaken for interlobar empyemas. Encapsulated tuberculous pleurisy may be difficult to distinguish from solitary cysts. Infantile cystic disease often causes death from dyspnea due to inflation of the diseased lung and compression of the sound one. This emergency can be relieved by the introduction of a valve tube. Large infected multiple cysts are often mistaken for empyema, both before and after drainage. Unusual persistence of empyema and a mucous discharge should arouse suspicion of cystic disease. The author discusses methods of treatment—extirpation, drainage, lobectomy and closure of bronchial fistulas.

Chronic Pyogenic Osteomyelitis.—Brunschwig recently observed three cases of chronic pyogenic osteomyelitis of more than fifty years' duration, presenting large bony cavities and draining sinuses. Study of the specimens obtained showed partial epithelization of the bony cavities. This was the result of proliferation of the cutaneous epithelium along the sinuses. Sequestrums with calcified marrow and calcification of marrow in living bone was also noted. The epithelization of the cavities obviously was a determining factor in the clinical course of these cases, for a cavity with a narrow outlet lined by epithelium will persist and will have a continuous discharge. This condition is perhaps not uncommon in chronic osteomyelitis with cavitation, but a review of the literature failed to yield reports of similar observations.

Radical Cure of Hallux Valgus.—Soresi describes a procedure in which hallux valgus may be radically cured, even when the bursa has been infected, by resecting the head of the metatarsal bone and preserving the articular surface, thus reconstructing a normal phalangometatarsal articulation.

United States Vet. Bur. M. Bull., Washington, D. C.

7: 197-295 (March) 1931

*Healing of Tuberculous Cavities. L. H. Fales and E. A. Beaudet.—p. 197.
Rôle of Affect in Psychotic Behavior. C. L. Carlisle.—p. 202.
*Narrowing of Aorta at Its Isthmus. G. E. Hein.—p. 209.
*Heart Action Under Vagus Stimulation. A. O. Sanders.—p. 212.
Electrocardiography as Diagnostic Aid. L. J. Godbey.—p. 215.
Mental Factors in Treatment of Tuberculosis. C. W. Mack.—p. 218.
Bacteriophage Adsorption by Vulnerable Bacteria. C. P. Brown and F. Gemar.—p. 224.
Significance of Effects of Various Psychic Stimuli. C. H. Denser.—p. 230.
Light Treatment in Tuberculosis of Lymph Glands. J. W. Thornton.—p. 232.
Tuberculosis of Larynx. B. B. Parish.—p. 235.
*Influenza in Its Relation to Chronic Degenerative Diseases. H. O. Matthews.—p. 239.
*The Weak Foot. W. H. Daniels.—p. 246.
Chronic Bronchitis. W. P. Dally.—p. 250.
Essentials of Local Anesthesia. R. L. Denson.—p. 252.

Healing of Tuberculous Cavities.—The results of a study made by Fales and Beaudet of 120 cases of tuberculous cavities (twenty-seven bilateral) show that a surprisingly large percentage of cavities become healed. It was found that the ability of cavities to heal depended greatly on two factors: the size of the cavity and the amount of the pulmonary involvement. The rest treatment appears of greater importance in the healing of cavities than pneumothorax, thoracoplasty or other surgical measures. In the average cavity case, which is not definitely retrogressive and is without elevation of temperature, rest should be the treatment selected for at least twelve or eighteen months. Then, if the cavity does not show a tendency to heal, resort should be had to pneumothorax or other surgical procedure, in suitable cases. If treatment is by rest, 42 per cent of the cavities will close, whereas a good collapse will be secured in 39 per cent of cases if one resorts to pneumothorax, and thoracoplasty will be successful in about 36 per cent of cases. In coming to a decision regarding operative intervention, one must not forget that in pneumothorax cases fluid will occur in about 70 per cent. Of these, about 20 per cent will develop pus and a smaller proportion, 7 per cent, will develop true empyema. In bilateral cavitation, the prognosis is not good. In only a little over 9 per cent of these cases did the cavities heal in both lungs. In order to attain the best results, rest must be prolonged and hospitalization continuous. Patients with cavitation should rest from twenty to twenty-four hours daily. The opinion advanced by some observers that a left-sided lesion heals with more difficulty than one on the right because the heart action will not allow the left lung to rest was not supported by this study. On the contrary, of cavities of all classes in this series which either healed or became smaller, 69 per cent were in the right and 83 per cent in the left lung.

Narrowing of Aorta at Its Isthmus.—Five cases of narrowing of the aorta at its isthmus are described by Hein, who believes that the diagnosis of coarctation of the aorta proximal to the ductus arteriosus is practically impossible, except after death, as there are present no characteristic symptoms. Coarctation of the aorta of the adult type in which the obstruction is distal to the ductus arteriosus is recognized with comparative ease if the obstruction is extreme or complete. In the opinion of the writer the more important observations are: signs of dilatation of the ascending aorta and vessel phenomena. The more important of these are as follows: 1. A well marked collateral circulation involves the branches of the subclavia and the intercostal arteries. Roentgen examination of the ribs reveals erosion of their undersurfaces; this phenomenon may be present in the absence of an obvious collateral circulation, as noted on inspection. 2. Pulsations in the abdominal aorta, femoral, popliteal and dorsalis pedis pulses are weak or absent, in contradistinction to marked pulsation in the carotids, particularly the right, and a well marked pulse in the radials, which may suggest the water hammer type. 3. There is a difference in the blood pressure in the arms and legs coincident with the delay in the transmission wave of the pulse to the lower extremities. 4. Other phenomena, such as enlargement of the heart without obvious cause, unexplained arterial hypertension, the presence of cerebral hemorrhage in the young, or marked weakness in the legs in a person who is otherwise well developed, may suggest the diagnosis, but the first three phenomena mentioned should be present.

Heart Action Under Vagus Stimulation.—According to Sanders there are great variations in the responses of normal persons to vagus stimulations. It is most difficult to determine just where to draw the line between the normal and the abnormal responses to vagus stimulations. Of fifty persons observed, twenty-seven showed more slowing of the pulse on stimulation of the right vagus and only three showed more slowing on stimulation of the left vagus, which seems to support the view that the right vagus commonly has more control over the sino-auricular node than has the left vagus.

Influenza and Chronic Degenerative Diseases.—The opinion is expressed by Matthews that influenza is practically a lethal infection in any chronic debilitating disease, and that at least 60 per cent of all influenza deaths in the recent epidemic were terminal to some chronic disease. The opinion is further expressed that influenza is the etiologic factor in those acute, subacute and chronic respiratory and cardiorenal diseases in which exposure to inclement weather is the only possible activating agent or inciting cause. The older classification of influenza into respiratory, gastro-intestinal and cerebral types, as well as the mild grip, is confusing. The disease is a septic infection or septicemia, with localization in the respiratory and cardiovascular-renal systems. All other manifestations are complications or sequelae.

The Weak Foot.—Daniels states that the principal cause of weak foot in adults is constant weight bearing, and it is often seen in the policeman, the soldier, the nurse, the waitress, the motorman and the postman. As the basis of the condition there is a disproportion between the weight to be borne and the muscular power that bears it. Poorly shaped shoes are the main cause, especially shoes that hold the front part of the foot in the everted position, thus causing a constant strain on the plantar fascia and ligaments. By this constant pull on the soft parts the arch is gradually lowered, and during this process the patient is in constant pain, like that from a sprained joint. The forepart of the foot is everted, the midtarsal joint is twisted inward, there is constant strain on the pillars of the arch, there is an inward rolling and a dropping of the inside of the foot, the internal malleolus becomes prominent, and a condition similar to knock knee, i. e., knock ankle, is produced. There are also changes in the os calcis, scaphoid, cuboid and astragalus, which is dropped from above to the inside of the os calcis. The first symptom noted is discomfort on standing or walking. The treatment depends on the kind and severity of the case. A mildly strained foot should be strapped in corrected position with adhesive plaster. The straps should be carried well up in the leg. Later, the patient should be given exercise to strengthen the soft parts and should be fitted with proper shoes. He should be taught to walk with the foot turned in, to relieve any tension on the plantar fascia and other soft parts. During the acute stage, if the feet are not strapped, contrast baths will often give the patient considerable relief. The exercises to be given consist of simple movements of the heel and toe, rocking out on the outer border; and, with the patient sitting cross-legged, he should be told to rotate the foot inward and downward in a circular motion with as much power as he can use. A shoe should be selected which will fit snugly from the heel to the midtarsal joint, so that from that point forward the patient will have full room but not too much. The inner border should be straight or turned in a little, depending on the rigidity of the foot. It should have a steel shank and a stiff leather counter to support the arch and, in the more severe cases, may be fitted with a Thomas heel with or without a wedge on the inner border, to throw the weight on the outer side of the foot, where it belongs. For arch supports the author prefers the all leather; or steel padded with leather may be used in some cases if the shoes are properly shaped. More can be done by wearing the properly shaped shoe than by any other method of treatment.

Wisconsin Medical Journal, Madison

30: 152-233 (March) 1931

Prevalence of Unsuspected Disease in Industrial Workers. T. L. Squier, Milwaukee.—p. 167.
Estimation of Permanent Disability Following Trauma. R. W. Rice, Stevens Point.—p. 173.
Diagnosis and Treatment of Infections of Hand. A. Tormey, Madison.—p. 176.
Spes Phthisica. J. W. Coon, Stevens Point.—p. 186.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

British J. of Actinotherapy & Physiotherapy, London

5: 243-270 (March) 1931

Rôle of Natural Mineral Waters in Treatment of "Rheumatic" Affections. W. Edgecombe.—p. 245.
Treatment of Chronic Rheumatic Disease by Physiobalneotherapy. W. A. Lieven.—p. 247.
Classification, Etiology and Therapy of Chronic Rheumatism. F. Gudzent. —p. 249.
Actinotherapy in Rheumatic and Metabolic Disorders. A. Furniss.—p. 252.
Mode of Action of Therapeutic Mud Packs in Rheumatic Disorders. L. Schmidt.—p. 255.
Some Observations on Special Treatment Centers for Chronic Rheumatism. A. R. Neligan.—p. 257.
Treatment of Rheumatism by Ultraviolet and Infra-Red Irradiations. E. J. Deck.—p. 261.

British Medical Journal, London

1: 383-432 (March 7) 1931

*Observations on Medicinal Treatment of Chronic Arthritis. N. Mutch. —p. 383.
*Closed Drainage in Treatment of Empyema: Forty-Two Cases in Infancy and Childhood. J. D. McEachern.—p. 389.
*Intranasal Dacryocystostomy for Relief of Lacrimal Obstruction: Analysis of Sixty Three Cases. F. H. Diggle.—p. 391.
*Reconstruction of Forearm After Amputation of Hand. A. K. Henry. —p. 393.
*Puerperal Coma: Rapid Recovery Following Inflation of Breasts. J. G. Kininmonth.—p. 395.

Medicinal Treatment of Chronic Arthritis.—Mutch states that with so many substances at his disposal the medical man, bewildered, may well pause before giving his patient any positive advice at all. A critical survey of every organ and system is essential and in making a therapeutic plan it is useful not only to keep in mind a balanced scheme of treatment but to decide whether the chief effort should be centered on the joints themselves, the septic foci, the digestive tract, the endocrines, general resistance, nonspecific reactive therapy, or an attempt to raise specific resistance to particular bacteria by vaccines. Clinical observation usually indicates clearly where the greatest advantage is to be secured. Suitable medicinal agents can then be selected with confidence. Revision will be needed from time to time to make good an advantage or to pass from one gain to the next objective, and gradually what seemed at first impossible will be achieved.

Closed Drainage in Treatment of Empyema.—According to McEachern, the advantages of the closed method over the open method fall under two headings: mortality and morbidity. The mortality under the closed method was lowered in his series of cases to 2.38 per cent. The greatest reduction in mortality takes place in infants. This reduction in the death rate can be attributed to the following causes: (1) The use of general anesthesia is avoided; (2) surgical trauma is lessened and (3) the danger of secondary infection is greatly reduced. The period of illness is shortened, the average number of days of drainage being 25.06 days, while the average by the open method is six weeks. In the author's early cases the tube was left in the chest an unnecessarily long period; had these early cases been treated in the same manner as the later ones, the average number of days of drainage would have been considerably reduced. This shortening of the period of drainage can be accounted for, first, by the action of surgical solution of chlorinated soda in overcoming the infection and by its power of softening the exudate covering the lung surface, and, secondly, by the assistance of negative pressure in expanding the lung and obliterating the cavity. Another advantage of the method is the elimination of the usual painful daily dressing.

Intranasal Dacryocystostomy in Lacrimal Obstruction.—Of sixty-three West operations which Diggle has traced, forty-six (73 per cent) were completely successful. Six of the remaining seventeen cases may perhaps be regarded as moderate cures in that, although there was some slight epiphora outdoors, there was no longer any distention of the sac or recurrent attacks of acute dacryocystitis. In each of these six cases persistent epiphora and dacryocystitis had been a source of real discomfort to the patients, four of whom considered that they were really cured. Eleven (17 per cent) were absolute failures. A brief survey of the case records of these patients may indicate the cause of failure. Four gave a history of recurrent dacryocystitis; in two of these it was noted in the case records that considerable difficulty was experienced in passing the lacrimal probe along the canaliculus, a kinking of the canaliculus being suspected. Severe bleeding, obscuring the field of operation, was mentioned in three cases, while in four there was no apparent cause. The author's second West operation was performed in one of these cases; two others were apparent successes two or three months after operation but later were complete failures. Presumably an inefficient removal of bone with subsequent stenosis was the explanation.

Reconstruction of Forearm After Amputation of Hand.—The aim of an osteoplastic operation described by Henry is to make a new digit provided with bone, tendinous attachments and skin, and nourished by the radial trunk. This digit is allowed to become ankylosed with the shaft of the radius at such an angle that the movement of pronation brings it into firm contact with a stiff artificial finger attached to a gauntlet fitting the stump; grip and its relaxation are thus secured by pronating and supinating the forearm.

Puerperal Coma and "Milk Fever."—Kininmonth reports a case of puerperal coma in a primipara, aged 21, in whom it was thought that the condition might be analogous to "milk fever" of cows. Mammary inflation was suggested. This was carried out with a sterile Higginson syringe attached to an exploring needle, which was thrust well into the breast substance. The nipples were tied off with tape, since, before this was done, air was observed bubbling through milk which had been expressed on to the surface. Both breasts were inflated as far as possible, though great tension was impossible on account of spreading surgical emphysema. The following day the patient was perfectly clear mentally and felt well, though her temperature was 100 and there was still pus in the urine. Three weeks later the recovery was complete. The case was clearly a toxemia of an unusual kind arising during the puerperium. The clinical picture was unlike puerperal sepsis, eclampsia, acute yellow atrophy or delayed chloroform poisoning but resembled "milk fever" which occurs in cows. The remarkable recovery after mammary inflation makes milk fever as likely a diagnosis as any. This condition occurs in cows two or three days after calving. Without treatment, 30 per cent are said to recover spontaneously; the remainder die. About thirty years ago, inflation of the udder was found to have an almost miraculous effect in these cases; from a comatose and apparently fatal condition the cow completely recovers within eight hours. This treatment—until lately purely empirical—has reduced the mortality from milk fever to practically nil. A condition similar to that found in the cow occurs in the mare, the ewe, the sow, the goat and the dog but does not appear to have been described in woman. It has been recently shown that milk fever is associated in every case with a marked hypocalcemia and that recovery following inflation is accompanied by a rise in the blood calcium to normal. Recovery can also be brought about by the injection, intravenously or subcutaneously, of calcium gluconate. The acute blood calcium deficiency—the essential cause of milk fever—is the result of an inefficient parathyroid mechanism which is unable to cope with the drain on calcium resulting from the establishment of lactation. The specific effect of mammary inflation is apparently due to the mechanical distention preventing further interchange of calcium from the blood to the gland acini and possibly causing a reabsorption of calcium from the gland.

1: 433-480 (March 14) 1931

*Remarks on Acidosis from Clinician's Point of View. L. Findlay.—p. 433.
*Treatment of Gastric and Duodenal Ulcer. A. R. Short.—p. 435.
*Convulsions During Surgical Anesthesia. J. R. MacKenzie.—p. 440.
Unilateral Exophthalmos Following Administration of Thyroid Extract. T. G. Moorhead.—p. 442.
*Hallux Valgus: Note on Operative Technic. P. B. Roth.—p. 443.
Amebic Hepatitis with Hematemesis. R. E. Drake-Brockman.—p. 444.
Congenital Aneurysm of Brain. H. Reid and H. H. Gleave.—p. 445.

Acidosis from Clinician's Point of View.—Findlay explains how acidosis is produced in several clinical states. In fatal cases of gastro-enteritis the state of acidosis which is often observed arises from both the increased production of

acid in the body and an increased loss of base available for its neutralization. The former is due to the necessary concomitant starvation in consequence of the vomiting and defective absorption from the intestine, apart altogether from any therapeutic deprivation of food. The latter accompanies the loss of fluid by vomiting and diarrhea. The acidosis in gastroenteritis is merely an indication of the severity of the lesion and is in no way concerned with an explanation of the etiology of the condition. Nevertheless it shows how the fatal termination may be contributed to, and it suggests that the rational treatment is to replace the loss of fluid and to hinder the production of acetone bodies by the administration of water, salts and dextrose. This should be done at all costs; if they cannot be retained in the usual way, they must be administered either by the venous or by the peritoneal route.

Treatment of Gastric and Duodenal Ulcer. — On the basis of his own experience and a statistical study of gastric and duodenal ulcer, Short concludes that if mechanical obstruction is not present, and cancer can be excluded with confidence, efficient medical treatment ought to be given a fair trial. If it fails, or recurrence takes place, operation is indicated. For gastric ulcer the best operation is gastro-enterostomy with local removal of the ulcer. If the ulcer is large, deep and adherent a partial gastrectomy is often better. For simple pyloric stenosis, gastrojejunostomy is best. It is safe and satisfactory. For duodenal ulcer, gastrojejunostomy is the best treatment. If the ulcer is readily accessible it should be excised.

Convulsions During Surgical Anesthesia. — MacKenzie has observed seven cases of convulsions during surgical anesthesia. He believes that these convulsions owe their origin to two main factors. The essential and predisposing condition is acute toxemia, and the exciting cause is ether, itself a toxic agent, which stimulates an increased circulation of blood loaded with toxins or bacteria, or both, to the central nervous system and initiates acute cerebral irritation. The severity of the convulsion is in proportion to the virulence and acuteness of the toxemia of septicemia and may be aggravated by any impurities in the ether. The duration of the anesthesia would appear to be an important element. In none of the cases did the convulsion appear until the anesthesia had continued for at least fifteen minutes. In young patients, therefore, with acute suppuration, toxemia and high temperature the surgeon might well merely evacuate and drain, doing the least possible until the acute phase of the toxemia has passed. This would reduce to a minimum the period of anesthesia, the amount of the anesthetic agent, and the sensory stimuli from the operation area to the central nervous system. Aldehydes and peroxides in ether have undoubted toxic properties and tend to inhibit normal oxidation in the nerve cells. The passage of gas and oxygen over or through ether causes it to deteriorate rapidly. This is a point of considerable importance and ether which has been used with gas and oxygen should not be used in successive cases, more especially in children with acute toxemia and high temperature. The purest ether from a bottle opened for the occasion is the ideal. The treatment of the actual convulsion with inhalation of oxygen was inspired by the respiratory distress and cyanosis. It appeared to benefit the patient.

Hallux Valgus.—In the operative treatment of hallux valgus, Roth does not use a tourniquet. The foot lies on its outer side, and a horizontal incision two inches long, parallel with the length of the toe, is made through the bunion, extending equally beyond it in the two directions; it is planned to lie rather nearer the dorsum than the sole. The knife cuts down on to the neck of the metatarsal and through the layers of the bunion, exposing the head, the line of the joint, and the base of the phalanx, all in one sweep. The neck is cleared of periosteum by inserting two periosteal detachers in the line of the incision, one detaching everything above and levering it up, the other detaching everything below and levering it down. These two detachers are held with their points at right angles to each other by an assistant, and the tense capsule is freed from the head by a few touches of the knife. Finally, the capsule is cut through vertically, opposite the joint interval, exposing the head completely. The blades of the bone-cutting forceps are insinuated above and below the neck one at a time, the detachers being separately withdrawn to make way for them, and are adjusted as close to the head as possible, with their beveled edges turned toward it. Only the head is removed. When the blades are in position, the neck is cut through and the severed head levered out with the closed bone-cutting forceps and the two detachers, so that it is grasped with Lane's small bone-holding forceps, twisted off, and removed. No part of the bunion itself is removed.

Edinburgh Medical Journal

38: 145-236 (March) 1931

Intrathoracic Tuberculosis of Childhood. G. S. Banks.—p. 145.
Local and General Problems in Tuberculosis Administration. H. J. Rae. —p. 152.
*Tuberculous Hyperplasia of Large Intestine. J. Anderson and W. T. Munro.—p. 159.
*Microbic Dissociation: Attenuated Tubercle Bacillus of Calmette and Guérin (B C G). R. S. Begbie.—p. 174.
*Thoracoplasty in Pulmonary Tuberculosis; Six Cases. C. Cameron and W. Mercer.—p. 183.
Orthopedic Problems. W. Mercer.—p. 198.
Tuberculosis in Hebrides: Milk. H. Williams.—p. 209.
Milk Supply of Country: Policy? J. C. Simpson.—p. 219.

Tuberculous Hyperplasia of Large Intestine.—Anderson and Munro have come to look on hyperplastic tuberculosis of the intestine as definitely a local disease which, if left alone, is gradually progressive or, if short circuited, is only partially cured. It fortunately occurs in an area that is reasonably accessible and removable. The operation which they consider most suitable is the one they perform for carcinoma of the same area, namely, removal of that segment of intestine supplied by the ileocolic and right colic arteries, with the accompanying lymph nodes. This usually means about six inches of the ileum, the ascending colon, and one third of the transverse colon. If the disease is wide of that, the resection must be done according to the extent of the disease. An incision is made over the right paracolic fossa, the colon is stripped forward and resected, and an end to side or lateral anastomosis is done. The ureter appears to be more liable to become adherent to the mesentery than it does in carcinoma, and one has to be careful to avoid damage to the superior mesenteric artery and to the duodenum. The cavity left is peritonized, and a soft rubber dam drain is placed in the flank, to prevent accumulation of culture medium in the form of a blood clot. The immunity from immediate complication in all these cases, as compared with many other tuberculous lesions of the abdomen, has been striking. The authors favor cautery division of the excluded ends of the intestine and they have adopted a three layer suture line of hardened catgut for the anestomosis instead of a two layer one, in the hope that there may be less tendency to fistula.

Microbic Dissociation.—Evidence of dissociation of B C G into "rough," "smooth" and "intermediate" types has been found by Begbie. Experiments on guinea-pigs have not shown clear-cut lines of demarcation in the virulence of the types of growth obtained, but definite variation was noted, the "smooth" type being most virulent, the "rough" type intermediate in virulence and the umbilicated or "intermediate" type of growth the least virulent. A subculture of B C G on Dorset's egg medium was more virulent than the intermediate type of growth; a fresh culture on a glycerin bile potato gave results similar to the intermediate type. This would appear to be explained by Petroff's statement that the S type of organism does not grow on glycerin bile potato, but that it grows on other mediums. Of the forty-two guinea-pigs used for the experiments, five died of vague intercurrent conditions on the eighteenth day or later after inoculation and they were all animals that had received intracardiac inoculations. It is possible that, although not definitely tuberculous, their deaths were the result of some pathologic condition set up by the injections. In any case it has been found that variants derived from B C G are capable of producing death from tuberculosis when inoculated into guinea-pigs, and the suitability of B C G for immunization of infants against tuberculosis must still remain open to question.

Thoracoplasty in Pulmonary Tuberculosis. — Cameron and Mercer state that the best method of treating a unilateral pulmonary tuberculosis is undoubtedly by extrapleural thoracoplasty. By this method the chest capacity can be reduced by almost as much as can be effected by a large pneumothorax.

The object of the operation is to produce a temporary mobilization of the ribs so that the chest wall on the operated side falls inward toward the mediastinum and thus causes permanent collapse of the underlying lung. With the regeneration of bone from the periosteum, the ribs become more fixed than before and in a new position. The operation has the advantages over a pneumothorax that the lung is stationary and the collapse is permanent. Once done, the treatment is finished, and with convalescence the patient becomes a free agent. There is no risk of effusion and of the complications associated with it. The two disadvantages are the danger of the operation and the impossibility of again using the lung should disease develop on the other side.

Glasgow Medical Journal

115: 105-160 (March) 1931

Early Symptoms, Diagnosis and Treatment of Acute Anterior Poliomyelitis. G. B. Fleming.—p. 105.
Pathology of Poliomyelitis. D. F. Cappell.—p. 115.
Epidemiology of Poliomyelitis. J. L. Halliday.—p. 121.

Journal of Laryngology and Otology, Edinburgh

46: 153-224 (March) 1931

Eustachian Tube. A. R. Tweedie.—p. 153.
Pathogenesis of Aural Cholesteatoma. D. McKenzie.—p. 163.

Journal of Tropical Medicine and Hygiene, London

34: 65-80 (March 2) 1931

Pathology of Schistosomiasis Haematobium. R. Girges.—p. 65.

34: 81-92 (March 16) 1931

Observations on Trypanocidal Action of Human Blood Serum on Trypanosoma Rhodesiense in White Rats. J. F. Corson.—p. 81.
Amebo-Test as Possible Additional Test in Differentiation of Certain Bacteria. A. Castellani.—p. 83.
Control of Rushes and Water Lilies in Localities Infested with Bilharzia Parasitic Worms. F. G. Cawston.—p. 84.

Medical Journal of Australia, Sydney

1: 219-246 (Feb. 21) 1931

Estimation of Lactic Acid in Blood. W. B. S. Bishop.—p. 219.
Medical Men as Novelists. W. J. L. Duncan.—p. 225.

South Africa M. Assn. Journal, Cape Town

5: 69-100 (Feb. 14) 1931

Diagnosis and Prophylaxis of Enteric Through O-Agglutination. F. Daubenton.—p. 71.
Ambulatory Treatment in Surgery. G. Sacks.—p. 77.
Modern Operative Treatment of Detachment of Retina. J. C. Gillespie.—p. 79.
Treatment of Valvular Trouble with Fibrolysin and Iodolysin. O. Krause, Snr.—p. 80.

Tubercle, London

12: 241-288 (March) 1931

*Treatment of Tuberculous Laryngitis in a Sanatorium. F. Heaf.—p. 241.
Epidemiology and Pathology of Tuberculosis in India. A. C. Ukil.—p. 244.

Treatment of Tuberculous Laryngitis in a Sanatorium.—Heaf states that all patients with tuberculous laryngitis except those that are hopeless should be advised to try to keep silent, and they should be provided with a pencil and a notebook to write down all their conversation. Whispering is not recommended, as it causes considerable laryngeal movement. It is best to instruct the patient to keep absolute silence, and then allow him to use his voice normally for one hour each day, increasing the period by hourly increments every three or four days if the larynx remains quiescent. It is also particularly desirable that useless coughing should be checked as much as possible during treatment. The advice to keep silent is difficult to follow, and it is rare to find a patient who is conscientious in this direction, particularly among the poorer classes. It is therefore necessary to assist the patient with further treatments. These may be classified under the following headings: (1) local applications (respirators, insufflations, painting with caustics), cauterization, heliotherapy, external applications (blisters), injection of superior laryngeal nerve, and surgical methods. It must be remembered, however, that silence and the galvanocautery are the two most important and effective methods of treatment.

Annales de l'Institut Pasteur, Paris

46: 137-276 (Feb.) 1931

*Rôle of Nervous System and of Conditioned Reflexes in Immunity. S. Metalnikov.—p. 137.
Three Years of Preventive Vaccination with B C G at Brest. J. Q. des Essarts and G. de Carbonnières.—p. 169.
Preventive Vaccination and Treatment of Tuberculosis with B C G. A. Radossavliévitch, N. Stanoyévitch, S. Kostitch-Yoksitch, M. Rankovitch, Y. Nédelkovitch, V. Spoujitch and M. Mouritch.—p. 178.
Purification and Concentration of Diphtheria Toxin and Toxoid. S. Schmidt, A. Hansen and K. A. Kjaer.—p. 202.
Discovery of Infective Agent of Schlammfieber: Leptospirosis Grippo-Typhosa Aquatilis. S. Tarassoff.—p. 222.
Discussion of Tarassoff's Article on Discovery of Infective Agent of Schlammfieber. J. E. Dinger and F. Wiersma-Verschaffelt.—p. 226.
Attempt at Systematic Vaccination of Pigs Against Hog Plague. M. A. Staub.—p. 228.
Epidemic of Poliomyelitis in Department of Lower Rhine. C. Levaditi and L. Willemin.—p. 233.
Bartonellosis and Mixed Infections. A. Lwoff and M. Vaucel.—p. 258.

Rôle of Nervous System and of Conditioned Reflexes in Immunity.—By using Pavlov's method of producing conditioned reflexes in numerous experiments on animals, Metalnikov shows that it is possible to produce immunity reactions not only by the injection of antigens but also by conditioned external excitations. After twenty or twenty-five injections of bacteria accompanied by external excitations (scraping of the skin or application of heat) the animals were left in repose for from twelve to fifteen days. The same external excitation was then repeated several times, which produced in the peritoneum or in the blood of guinea-pigs thus treated typical defense reactions, as leukocytosis and increase of antibodies. The author considers this phenomenon an additional proof of the rôle of the nervous system in the process of immunization.

Annales de Médecine, Paris

29: 1-96 (Jan.) 1931

Auscultatory Arterial Tones, Auscultatory Silent Zone, and Its Relations with Anacrotic Pulse. C. Laubry and A. van Bogaert.—p. 5.
*Etiology of Primary Serofibrinous Pleurisy. A. Landau, J. Glass and M. Markson.—p. 41.
Intradermoreaction with Serum of Horse. V. de Lavergne.—p. 58.
Leyden's Acute Ataxia: Two Cases. L. van Bogaert.—p. 69.

Etiology of Primary Serofibrinous Pleurisy.—Landau and collaborators made a study of twenty-eight cases of primary serofibrinous pleurisy in order to determine the etiology of the disease. In 54 per cent of the cases a tuberculous origin was revealed by inoculation of guinea-pigs with the exudate. In 27 per cent of the 46 per cent of cases in which inoculation gave no certainty as to the etiology, clinical and roentgen examination and the anamnesis were indicative of a tuberculous origin. The etiology was totally obscure, therefore, in only 20 per cent of the cases. The clinical picture, the evolution of the disease, its duration, the physicochemical and cytologic characteristics and the blood picture did not present any variations according to the positivity or negativity of the results of inoculation. The authors point out that the impossibility of determining a tuberculous etiology in certain cases by inoculation of guinea-pigs may be due either to the bacteriolytic properties of the discharge (during the first days of the formation of the exudate the inoculations were positive in 69 per cent of cases while later the proportion fell to 37 per cent) or to the presence in the discharge of an attenuated form of tubercle bacilli resulting from mutations or recalling the filtrable virus or ultravirus. The benign character of the disease in certain cases would thus be due not to the absence of tubercle bacilli but to the presence of an attenuated form of the bacillus.

Archives des Maladies du Cœur, etc., Paris

24: 1-64 (Jan.) 1931

*Pathogenesis of Permanent Septal and Paraseptal Rhythm. C. Pezzi.—p. 1.
Mechanism of Inferior Nodal Tachycardia: Tachysystole Originating in Left Infra-Atrial Circuit. E. Géraudel.—p. 25.

Pathogenesis of Permanent Septal and Paraseptal Rhythm.—Pezzi reports two cases of permanent septal rhythm. The first case involved a bradycardic rhythm caused by a destructive lesion of the sinusal node or by a sino-auricular and sinonodal blockage. In the second case the rhythm was tachycardic, caused by a permanent irritation or excitation of

Tawara's node, which caused attacks of paroxysmal tachycardia which later led to a permanent acceleration of rhythm. Although the tachycardic form of permanent septal rhythm is of less frequent occurrence than the bradycardic form, the author feels that it is of considerable importance. He also reports several cases which demonstrate the existence of two different varieties of permanent paraseptal rhythms. The first variety is characterized by a shortening of the P-R interval, by a ventricular complex of the type of blockage of the right or left branch and by paroxysmal tachycardic attacks. The seat of the disturbance is in the neighborhood of the septal formation and consists of an inhibition of the left or right septoventricular conductive passages at their origin in different parts of Tawara's node. The second variety of paraseptal rhythm does not involve septoventricular blockage; the causative lesion is probably in the same area but is less extensive.

Bulletin de la Soc. d'Obst. et de Gynéc., Paris

20: 1-112 (Jan.) 1931

Regional Anesthesia in Rapid Evacuation of Uterus by Low Cesarean. De Peretti.—p. 27.
Uteroplacental Apoplexy with Peritoneal Fissures. Desnoyers and Lejeune.—p. 30.
Fatal Apyretic Puerperal Septicemia in Azotemic Patient. Le Lorier. —p. 32.
*Pathogenesis and Treatment of Vomiting in Pregnancy. E. Aburel.—p. 34.
Prolonged Local Anesthesia in Obstetrics. E. Aburel.—p. 35.
Continued Irrigation in Cases of Prolapsed Umbilical Cord. M. Metzger, Couinaud and Poileux.—p. 37.
Pregnancy Following Repeated Hysterosalpingography. Francillon-Lobre and J. Dalsace.—p. 42.
Therapeutic Action of Hysterosalpingography. R. Solal.—p. 44.

Pathogenesis and Treatment of Vomiting in Pregnancy.—Aburel explains the mechanism of vomiting during pregnancy as follows: On a nervous, spasmophilic and susceptible terrain the irritation of the gravid uterus produces a uterogastric reflex. The stimulus, leaving the uterus, follows the sympathetic centripetal paths, arrives at the spinal cord and the solar plexus and acts reflexly on the pylorus, producing spasms and vomiting. The author has verified this by the therapeutic effects he has obtained by anesthetizing the centripetal nerve tracts of the uterus. In fact, by anesthetizing the lumbo-aortic plexus one can after fifteen minutes give a normal meal to women who could not retain food at all. The author reports two cases of this kind.

Bull. et Mém. de la Soc. Méd. des Hôpitaux de Paris

47: 197-236 (Feb. 16) 1931

Case of Sneezing of Paroxysmal Type. G. Canuyt and E. Vaucher.—p. 197.
*Case of Gigantic Cystic Gallbladder. J. P. Sureda and F. G. Mones. —p. 206.
Case of Syphilitic Diabetes Insipidus Cured by Antisyphilitic Treatment. Lebon, Loubeyre and Becmeur.—p. 209.
Case of Bradycardia with Hypercholinemia in Course of Pigmentary Dissociated Jaundice. Dumitresco-Mante, Dulugea and Ionesco-Craiova. —p. 212.
Case of Pernicious Anemia Resisting Liver Treatment. M. Labbé, R. Boulin, Petresco and Soulié.—p. 217.
Variations of Urea of Blood in Course of Diabetic Coma. M. Labbé and R. Boulin.—p. 223.
Case of Hematogenesis Cured by Splenectomy; Severe Relapse: Cure by Suppression of Menses. P. Emile-Weil.—p. 229.
Syndrome of Geniculate Ganglion: Facial Paralysis and Preeruptive Adenitis. Richon, Girard and Hennequin.—p. 233.

Case of Gigantic Cystic Gallbladder.—Sureda and Mones report the case of a man, aged 57, who suddenly had an attack of intense abdominal pain with radiations toward the anus, accompanied by nausea. A month later he had a similar attack, after which he began to lose his appetite and noticed that his abdomen increased in size. After five months another attack occurred, accompanied by biliary vomiting, which lasted several hours. His only previous illness had been a condition of epigastric malaise with vomiting, lasting two weeks, about twenty years before. A diagnosis of hepatic neoplasm was made and potassium iodide was prescribed. This medicament produced a most encouraging amelioration of the general symptoms, but the enlargement of the abdomen persisted. An exploratory laparotomy was then performed, revealing a mild ascites in which the fluid had the appearance and color of tea. The edges of the incision once separated, the entire space was filled with an enormous cyst, which by the regularity of its surface and the smoothness in the lower portion and also by its consistency and color bore a marked resemblance to a large ovarian cyst. The upper part was covered by the great omentum, which adhered to and seemed to be fused with the cyst, the volume of which made exploration impossible. With a trocar, about 5 liters of a dark fluid was removed, which permitted the continuation of the exploration. Exteriorization was impossible because of the multiple posterosuperior adhesions in the pancreaticoduodenal region and at the lower surface of the liver. The sac was opened to remove the rest of the fluid and numerous clots. It was found that in the upper adherent area the wall of the cyst was occupied by a vegetating, friable mass covered with coagulated blood. Because of the malignant nature of the cyst it was decided to attempt extirpation in spite of the difficulties involved. When the cyst was detached from the abdominal organs, a hard, osseous nodule was discovered, which penetrated the vegetating mass and seemed to form a part of it. When the dissection of the upper part of the cyst was continued it proved to be covered with a small fringe of liver, and it was revealed that the cyst was in reality the gallbladder. The extirpation was effected, although incompletely; the patient died three days later.

Paris Médical

1: 145-160 (Feb. 14) 1931

Athetosis. H. Roger.—p. 145.
Pharmacodynamic Action of Some Amino-Alcohol Derivatives of Ephedrine and Ethanolamine. J. Lévy and Sergent-Monsarrat.—p. 148.
*Indications and Results of Intrarectal Injections of Hypertonic Solution of Sodium Chloride in Intestinal Occlusion. R. Soupault.—p. 154.
Modifications of Acid-Base Equilibrium of Urine During Vichy Cure. M. de Fossey, Goiffon and Nepveux.—p. 155.

Intrarectal Injections of Hypertonic Solution of Sodium Chloride in Intestinal Occlusion.—Soupault reports several cases of intestinal occlusion and retention of gas in which he has secured excellent results by injecting intrarectally a concentrated hypertonic solution of sodium chloride. The complete expulsion of the gas usually takes place within a few minutes after the injection, and the pain and functional symptoms are correspondingly ameliorated. The results are seemingly due to a specific action of the sodium chloride solution on the intestinal musculature, reviving the muscles and stimulating contractions of the smooth fibers. The author recommends the use of this simple treatment both in cases of postoperative occlusion and in cases of peritonism of various kinds in which relief of the occlusion may bring relief in itself or may put the patient in an operable condition.

Presse Médicale, Paris

39: 217-232 (Feb. 14) 1931

Indications for Radioscopy or Radiography. R. A. Gutmann.—p. 217.
*Results of Use of Oily Suspension of Insulin in Grave Diabetes. H. Chabanier, C. Lobo-Onell and E. Lélu.—p. 219.

Use of Oily Suspension of Insulin in Grave Diabetes.—Chabanier and collaborators describe a preparation of insulin in oily suspension, which they have used with success in the treatment of severe cases of diabetes. Because insulin injected in aqueous solution is absorbed with extreme rapidity even when the injections are given frequently, there are necessarily periods of varying length during which the patient is without the influence of insulin. The medicament is more evenly distributed in the oil than it is in aqueous solution and the action is therefore much more gradual and regular, and a smaller quantity of insulin is required. The amount of carbohydrates taken by the patient is naturally different than when the insulin is given in aqueous solution. Since the action of the insulin, instead of being immediate and rapid, is extended over a longer period of time, the carbohydrates should be given in smaller quantities and with greater frequency. The ration usually has to be adjusted for each individual by experimentation. The authors do not recommend this method of insulin treatment for all patients but usually only for those with whom insulin in aqueous solution has given unsatisfactory results. Their reason for this restriction is that they are afraid that continued injections of the oily suspension may have a detrimental effect on the tissues, and they have not used the treatment long enough to be sure of the end-results.

Revue de Chirurgie, Paris

50: 1-62 (Jan.) 1931

*Subserous Cholecystectomy Without Drainage. G. Cotte and H. Roland.—p. 1.
Fractures of Odontoid Process of Axis. J. S. Magnant.—p. 13.
Relations Between Biliary Lithiasis and Renal Disturbances. F. Bilger and R. Fontaine.—p. 34.
Intervention for High Inguinal Ectopy. A. Folliasson and T. Garophalides.—p. 48.
Pulmonary Accidents in Surgery: Prophylaxis and Cure by Impregnation with Creosote. L. Weiller.—p. 57.

Subserous Cholecystectomy Without Drainage.—Cotte and Roland feel that in many cases the cholecystectomy without subhepatic drainage has distinct advantages. In the first place it obviates the necessity of withdrawing the drains after the operation, which besides being painful often causes a separation of adhesions, which may lead to serious septic reactions. The removal of the drains often causes hemorrhages also. The operative results of the cholecystectomy without drainage are usually excellent and convalescence is rapid. The late results also seem particularly noteworthy, since the operation without drainage does not lead to the painful and dangerous relapses that are often observed as the result of periduodenal or pericolic adhesions produced by the fixation and removal of the drain. The solidity of the abdominal wall is an additional advantage; although many patients following cholecystectomy with drainage have a perfectly solid wall, from time to time one may observe at the level of the line of incision a tiny hernia, which necessitates a new intervention. The authors realize, however, that drainage is necessary in a large proportion of cases. In fact, a cholecystectomy without drainage is possible only when enough peritoneum can be preserved to bury the stump of the cystic duct and cover the bed of the gallbladder, when there is no marked hemorrhage and when the cystic artery has been securely ligated. With careful observance of these three indications, however, the authors do not hesitate to recommend the operation.

Revue Médicale de la Suisse Romande, Lausanne

51: 65-128 (Feb. 25) 1931

Traumatisms and Cancer. C. Du Bois.—p. 65.
*Method for Curing Nocturnal Enuresis. J. Bonjour.—p. 82.

Method for Curing Nocturnal Enuresis.—Bonjour points out that a good way to avoid nightly inconveniences and cause the child to feel the need to urinate during the night is to affix an occlusive bandage of adhesive plaster, which prevents the passage of urine. The child, or some older member of his family, can be taught to apply the bandage each night. Usually after a few nights, during which the child wakens and thus learns to wait until morning for urination, the habit will be formed and no more trouble will be encountered.

Schweizerische medizinische Wochenschrift, Basel

61: 145-168 (Feb. 14) 1931

Difficulties of General Practitioner in Diagnosis and Therapy. S. Arnold.—p. 145.
*Roentgen Therapy of Spondylarthritis Deformans. S. Grauer.—p. 151.
Principles of Böhler's Treatment of Fractures. F. Zollinger.—p. 154.
Phthisiogenesis and Early Tuberculous Infiltrate. H. Staub.—p. 157.
Nonaccidental Lesions Capable of Simulating an Accident and Detected by Anatomicopathologic Examination. A. Jentzer.—p. 161.
Pyloric Stenosis Resulting from Pancreatic Cyst. E. Furrer.—p. 162.

Roentgen Therapy of Spondylarthritis Deformans.—Before describing the roentgen treatment, Grauer discusses the incidence, etiology, pathologic anatomy, symptomatology and differential diagnosis of spondylarthritis deformans. He then mentions numerous therapeutic measures that have been recommended, namely: cinchophen, hot air, sweating cures, quartz lamp irradiations, diathermy, protein shock therapy, supporting apparatus and reducing methods. It cannot be denied that in many cases one or the other of these measures proves helpful; however, in other patients the expected results are not obtained. The small literature on roentgen therapy of spondylarthritis deformans seems to indicate that this method is rarely employed. However, the favorable results obtained with roentgen irradiation in 170 cases convinced the author that it is the method of choice. The technic is described as follows: The area surrounding the field which is to be irradiated is covered with lead plates so that only a strip from 4 to 6 cm. in width is left free. Three irradiations in all are given at intervals of seven days. Each time 6 Holzknecht units is applied through a filter of 0.3 mm. of zinc and 2 mm. of aluminum. The grenz wavelength is 0.1 angstrom unit and the focus distance is 30 cm. In pregnant women roentgen irradiation of the lumbar or sacro-iliac regions of the vertebral column is contraindicated. In regard to the efficacy of the roentgen treatment of spondylarthritis deformans it is stated that in some patients, especially in those in whom the disease process has existed only for a short time, an improvement is noted early, sometimes even after the first treatment. However, in patients in whom the disease has existed for a long time, weeks or even months pass before the therapeutic effects of roentgen irradiation become evident. In some cases an exacerbation sets in after the first treatment, and it is advisable to tell the patients about this before treatment is begun. The final results are usually favorable in the cases in which a temporary exacerbation is noted.

Clinica Ostetrica, Rome

33: 65-128 (Feb.) 1931

Calcemia During Pregnancy and Puerperium. A. Garofalo.—p. 65.
*Mineral Exchange During Pregnancy and Influence of Treatment with Calcium and Ergosterol. G. Roi.—p. 81.

Mineral Exchange During Pregnancy.—The use of vitamin D, combined with colloidal calcium, has, according to Roi, particular indications in the pregnant, owing to the peculiar conditions surrounding the pregnant woman. The use of vitamin D with colloidal calcium produces notable effects, influencing beneficially the general metabolism and reestablishing the normal equilibrium of the electrolytic system and of the neurosympathetic system.

Clinica Pediatrica, Modena

13: 1-88 (Jan.) 1931

Transposition of Large Vessels of Heart. G. Dagnini and G. Gelli.—p. 1.
*Heart in Progressive Muscular Dystrophy. G. Salvioli.—p. 53.

Heart in Progressive Muscular Dystrophy.—Salvioli studied the electrocardiogram of two children who presented the symptoms of progressive muscular dystrophy without simultaneous cardiac disturbances. The electrocardiogram showed no changes that could with certainty be ascribed to a disturbance in the myocardium. In a third case, in which there was a mitral defect, the electrocardiogram was entirely normal.

Pediatria, Naples

39: 177-232 (Feb. 15) 1931

*Clinical Observations on Dermography in Children's Diseases. F. Macrì.—p. 177.
Arneth Formula in Anemic and in Normal Children Given Liver Therapy. G. Melodia.—p. 195.
Hematologic Observations in Relation to Seaside Treatment. E. Colonnese.—p. 203.

Observations on Dermography in Children's Diseases.—Macrì concludes: In children the dermographic reaction is almost the rule, and can probably be associated with the state of physiologic vagotonia in the child. The phenomenon, in addition to being more constant, is more prompt and more intense, the younger the child. The phenomenon is not influenced, as a rule, by the morbid disorders with which the child may be affected, though there may be some variations in morbid states in which there is a disequilibrium of the sympathetic nervous system.

Policlinico, Rome

38: 183-218 (Feb. 9) 1931. Practical Section

*Medical Treatment of Hepatic Amebic Abscess. T. Casoni.—p. 183.
Treatment and Outcome of Fractures of Vertebral Body. E. Ettorre.—p. 189.
Tumors of Corpus Striatum. I. Imber.—p. 192.

Medical Treatment of Hepatic Amebic Abscess.—Casoni, on the basis of observations in four cases of hepatic amebiasis, together with advanced study on colliquative necrosis with formation of an enormous abscess collection, which healed with only emetine treatment, concludes that the treatment of this morbid type is always solely medical. Surgical treatment should be confined to those rare cases in which the morbid process, because of a septic complication, acquires the nature of true pus, and to those cases in which there is a perforation

of the pleura, the pericardium or the peritoneum. But neither the advanced process, nor the large volume of the abscess collection, nor the extreme gravity of the patient's condition is a contraindication to medical treatment, for medical treatment will aid even in such apparently hopeless cases.

Rivista di Clinica Medica, Florence

31: 1121-1176 (Nov. 15) 1930

*Interlobar Pleurisy. D. Vettori.—p. 1121.
Icterus in Pneumonia. G. Pisani.—p. 1148.
Action of Calcium in Hemoptysis of Tuberculosis. P. Catelani.—p. 1162.

Interlobar Pleurisy.—Vettori gives an historical survey of the various articles that have appeared on the subject of interlobar pleurisy since the first publications of Gerhardt (1893) and Dieulafoy (1899), down to the articles of Fleischner, roentgenologist of Vienna (1924-1927). He gives also descriptions of two cases that came under his personal observation in children, aged 12 and 15, respectively. In the differential diagnosis one must consider pulmonary abscess, gangrene, hydatid cyst and bronchiectasis. In the closed stage, the hydatid cyst, the abscess and interlobar pleurisy have a phase that is lacking in true gangrene and in bronchiectasis: the "collection" phase, nearly always easily demonstrable by ordinary means. Fever of the intermittent type (or more of the remittent type), often with chills and sweats, may occur in the presence of an abscess and in interlobar empyema, in the presence of a cyst only when suppuration develops through infection from without. The course of the "collection" phase is usually short in the first two disease types, longest in the cyst, in which the blood changes (eosinophilia) and the skin reaction to tuberculin serve in many cases to clarify the diagnosis. The site, the obtuse form of the collection and the characteristic location of tender points may point (though not always definitely) to interlobar pleurisy.

Semana Médica, Buenos Aires

38: 333-400 (Feb. 5) 1931. Partial Index

*Acute Ascending Spinal Paralysis. V. Dimitri.—p. 333.
Primary Arterial Hypotension: Pathogenesis and Treatment. V. Peradotto.—p. 355.
Daily Allowance of Diet in Diabetic Children. P. B. Landabure and F. Puchulu.—p. 360.
Forty Cases of Scoliosis: Pathogenesis and Treatment. S. Satanowsky.—p. 363.
Koplik's Spots in Nurslings: Clinical Description of Their Evolution. S. M. Smith Bunge.—p. 387.
Combined Preparation of Ether in Aromatized Oil as General Anesthetic. J. Rómulo Rios.—p. 396.

Acute Ascending Spinal Paralysis.—Dimitri says that, though from the clinical point of view acute ascending spinal paralysis is a well defined syndrome, there is not uniformity of opinions on the anatomicopathologic lesions which have been found in several cases. Some authors believe that the condition is an ascending polyneuritis while others believe that the predominant lesion is located in the central nervous system, some cases being considered as mixed or transitional forms with lesions both in the brain and in the spinal cord. The author made clinical observations and anatomicopathologic studies in three cases in alcoholic addicts aged from 40 to 65. In the first case the histologic changes discovered at necropsy in the spinal cord, without participation of the peripheral nerves, were of a destructive nature. The lesions caused by acute ascending spinal paralysis were superimposed on old medullary lesions of syphilitic origin. The second case may be considered as an association of hemorrhagic poliencephalomyelitis with acute ascending spinal paralysis. The author calls attention to the marked phenomena of ocular paralysis which this patient exhibited, probably caused by the hemorrhagic lesions and by the degenerative lesions of the nuclei of the central nervous system found at necropsy. The third case was related to a recent attack of diphtheritic angina treated intensely with serum and followed by an attack of polyneuritis which was in a condition of latency when the sudden grave symptoms of acute ascending spinal paralysis appeared. The histologic changes discovered at necropsy in this case were alterations of the vessels causing hemorrhages of recent formation in the brain. The author reaches the following conclusions: The presence of toxic substances in the body, especially a condition of chronic intoxication such as that caused by alcoholism, as well as a chronic or latent syphilis of the central nervous system, are the predisposing factors which permit the new toxi-infectious agent to cause extensive destructive lesions of the system, previously debilitated by the latent infection. The histologic changes discovered at necropsy in cases of acute ascending spinal paralysis are of a varied nature. The lesions in the spinal cord are the ones found most frequently. In two of the author's cases the changes in the brain were not extensive. The possibility that they may be present should, however, be kept in mind in order to take them in consideration for a correct interpretation of the clinical aspects of the disease. Neither clinical observations nor anatomicopathologic studies of acute ascending spinal paralysis may serve as a clue to determine the real nature of the disease; hence the advisability of experimental inoculation.

Archiv für klinische Chirurgie, Berlin

164: 1-842 (Feb. 17) 1931. Partial Index

*Development of Tumors Following Roentgen Irradiation of Tuberculous Processes of Joints and Bones. H. Küttner.—p. 5.
*Treatment and Outcome of Nonspecific Suppurative Inflammations of Large Joints. A. Kortzeborn and F. Hesse.—p. 95.
*Permanent Drainage of Stomach in Treatment of Mechanical and Paralytic Ileus and Combat of Thirst in Incoercible Vomiting. E. Heller.—p. 286.
*Mechanism of Retrograde Incarceration of Intestine. Matthaes.—p. 398.
*Value of Roentgen Examination in Diseases of Vermiform Appendix. R. Finsterbusch and F. Gross.—p. 454.

Tumors Following Roentgen Irradiation of Tuberculous Processes of Joints and Bones.—Küttner discusses sarcomatous and chondromatous tumors that developed after roentgen irradiation of tuberculous processes of joints. A girl, at the age of 5, was given roentgen irradiation on account of a tuberculous process in the right knee joint. The tuberculous process healed in the course of a year, but an osteosarcoma developed several years later on the lower portion of the femur. Ten case reports from the literature are reviewed. All these patients first had had an articular tuberculosis and were treated with roentgen rays. The author cites reasons why it is not likely that the tuberculous processes had at first been incorrectly diagnosed, and he points out that in eight of the eleven patients the tuberculous processes had already disappeared when the tumor became manifest. In regard to the structure of the tumors it is stated that in most patients they had the characteristics of sarcoma, whereas in two instances the cartilage formation was so pronounced that they must be considered as chondromas: In discussing the etiology of the malignant growths the author mentions three possible factors: (1) trauma, (2) tumor producing stimulus of tuberculosis, and (3) roentgen rays. As the most significant causal factor he considers roentgen rays. In the second part of the article he describes his own observations on a myeloma, which developed following a tuberculous spondylitis that had been treated with roentgen rays.

Nonspecific Suppurative Inflammations of Joints.—In the treatment of acute suppurations of joints, Kortzeborn and Hesse obtained favorable results with a conservative method. They recommend sterilization of the articular cavity by means of phenol camphor, preservation of the closed articular cavity, application of heat and early beginning of active exercise. According to the nature of the articular process and to the method of treatment, the authors divide their patients into several groups. Patients with sterile effusions who received conservative treatment belong to group A; to group B belong patients with articular suppurations, who received likewise conservative treatment, and to group C belong all patients with suppurations of joints, in whom the infection could be counteracted only by surgical intervention. In some of these cases the pus had perforated through the capsular ligament, and in others there existed primary capsular phlegmons. In twenty-one of twenty-seven cases, belonging to group A, the normal function of the joint could be restored, in two cases it could be partially restored, and in four cases the final results were unsatisfactory. In nineteen cases of group B the function became normal in four cases and in four others the function was partially restored, in four cases the joint became stiff, six patients died, and in one case a flail joint developed. In groups A and B the prognosis in regard to the preservation of function is comparatively favorable; however, in group C, that is, in patients in whom the joint

has to be opened, the partial or complete preservation of the function is a rarity. Of thirty-five cases of this group, the function was preserved completely in only one case; in eight instances it was partially preserved, twenty joints became stiff and seven patients died. If surgical intervention becomes necessary, the joint should be opened sufficiently to permit complete discharge of the pus. In most instances the joint will become stiff, but sometimes the function can be restored later by arthroplasty.

Permanent Drainage of Stomach in Treatment of Mechanical and Paralytic Ileus and Combat of Thirst in Incoercible Vomiting.—Heller asserts that in mechanical and in paralytic icterus the after-treatment is of greatest significance for the final results. He thinks that, among the many procedures that have been recommended for the restoration of the patient's strength and for the stimulation of the peristalsis, one method—prevention of regurgitation of the intestinal contents into the stomach and of stercoraceous vomiting by means of permanent drainage of the stomach—has been largely disregarded. The author discusses the two methods by which permanent drainage is done: simple gastrotomy or siphon drainage by means of a stomach catheter introduced through the nose. He thinks that in patients with severe cardiac insufficiency gastrotomy is safer and also simpler than siphon drainage. The causes of thirst in ileus are discussed. To overcome the thirst, continuous intravenous drop infusion is effective; but the fact that the permanent drainage of the stomach permits the patient to drink is also of great value.

Mechanism of Retrograde Incarceration of Intestine.—Matthaes asserts that observations have proved that the retrograde incarceration of an intestinal loop, which originally was considered improbable, is the most frequent form of retrograde incarceration. In investigations of retrograde incarceration, more attention has been given to the cause of the gangrene of the intermediate loop located intra-abdominally than to the cause of the presence of two or more intestinal loops in the hernial sac. There are two main forms of retrograde incarceration: either the mesentery of the gangrenous intermediate intestinal loop is involved in the incarceration, or it is not incarcerated and yet the intermediate loop is gangrenous. It is emphasized that the incarcerated hernia should be carefully examined before the constricting aperture is enlarged. The author further reviews the various explanations for the cause of gangrene of the intermediate loop, when the intermediate mesentery is not involved in the incarceration. Then he describes a case of his own observation in which two incarcerated hernias existed and three intermediate loops were gangrenous, whereas the mesenteries of all three loops were free from incarceration. The gangrene of one of the intermediate loops was caused by torsion of its mesentery. In the case of the two other loops, an acute angled bending in their mesenteries had caused the gangrene.

Roentgen Examination in Diseases of Vermiform Appendix.—During the last five years, Finsterbusch and Gross have employed roentgen examination in all cases of so-called chronic appendicitis. Their method is as follows: After the patient's intestinal tract has been completely evacuated, the abdomen is examined roentgenologically in order to detect whether or not calculi are present in the biliary, renal or urinary systems or whether mesenteric lymph nodes are calcified. This examination is made without previous introduction of a contrast medium. Then the stomach and duodenum are examined while the patient is standing, and before the patient drinks the contrast fluid, the thorax and the abdomen are roentgenographed. Two hours later the emptying of the stomach and the passage through the small intestine is controlled and the patient is given some more contrast fluid. From one to two hours later the patient eats a regular noon meal, and from six to eight hours after that, he is again roentgenographed in the recumbent position. In most cases the appendix is now already filled. After another twenty-four hours another roentgen control is made in the same position. At this time all appendixes that can be filled at all are visible. Later than forty-eight hours after ingestion of the contrast medium, filling of the appendix does not take place. If by now the diagnosis is not yet entirely clear and in order to detect disturbances in the evacuation, roentgenography may be repeated several times after intervals of twenty-four hours or more. Observations on 500 patients, of whom 265 were later given surgical treatment, convinced the authors that roentgenography is a valuable aid in the recognition of the multiform manifestations of chronic appendicitis. However, the roentgen examination does not make the other diagnostic aids superfluous. It should be neither overestimated nor undervalued. Roentgenography is valuable not only in corroborating a clinical diagnosis but also, what is perhaps still more important, in revealing incorrect clinical diagnoses and thus preventing unnecessary laparotomies.

Archiv für Verdauungs-Krankheiten, Berlin

49: 1-124 (Feb.) 1931

*Influence of Psychic Secretion on Gastric Acidity. M. Majus and O. Porges.—p. 1.
Gastric Secretion Associated with Appetite Suggestions Appearing in Dream. M. Dobreff.—p. 16.
Influence of Galvanic Current on Gastric Secretion and Evacuation. A. Kirstner, M. Gorinstein and M. Rudoy.—p. 19.
Psychophysiologic Influence of Hunger and Its Therapeutic Significance. F. Noltenius.—p. 43.
*Pepsin in Treatment of Gastric and Duodenal Ulcers. K. Glässner.—p. 55.
Antivirus Treatment of Colitis. L. von Friedrich.—p. 67.
Value of Potatoes in Diabetic Diet. G. Mészáros.—p. 79.
Evacuation of Solid and Liquid Food from Stomach. J. Marmur.—p. 82.

Influence of Psychic Secretion on Gastric Acidity.—Majus and Porges studied the rôle of psychic factors in the secretion of gastric juice following meals. The gastric contents were removed before breakfast, and 300 cc. of caffeine solution was introduced with a tube. Thus the chemicoreflex phase alone of the gastric secretion could be examined. The following test was made in the same persons later: While the caffeine solution was being introduced, an especially favored food was placed before the person examined so that the latter could see and smell it. Moreover, the person was told that the food would be given to him with the next meal. In the third test, instead of an appetite suggestion, a feeling of disgust or nausea was provoked at the time of administration of the solution. In all tests, the gastric contents were withdrawn afterward and the gastric acidity was determined. After tests coinciding with appetite suggestion, the gastric acidity was considerably more increased than after tests without appetite suggestions or after those associated with a feeling of disgust. This was observed during the first half of an hour. Within the second half of the hour, no such difference was found; that is, at the end of the first hour the gastric acidity proved to be the same in the three tests. Obviously the psychic factor does not influence the gastric acidity when digestion is at its maximum. Therefore gastric contents should not be examined before three quarters or an hour after administration of a test meal.

Pepsin in Treatment of Gastric and Duodenal Ulcers.—Glässner refers to his previous experiments in which intradermal injection of gastric juice obtained from an animal with a gastric ulcer resulted in the formation of a typical ulcer. The lesions were small or did not develop when gastric juice with a normal or a decreased acidity was injected. The author's recent experiments consisted in the following: Small incisions were made on both corneas of a guinea-pig; then the one scarified cornea was touched with gastric juice of a healthy animal and the other with gastric juice of an animal with a gastric ulcer. While the cornea treated with the normal juice healed, on the one treated with the ulcer juice there soon developed an ulceration. In other experiments, erosions produced with pepsin hydrochloride have been healed by injections of a neutral pepsin solution within fourteen days, while in the controls the healing did not occur until after six weeks. Further clinical tests were made with pepsin deprived of albumin through filtration. A 1 per cent neutral solution of the pepsin was given subcutaneously; the injections were usually well tolerated and proved to be harmless. Mild phenomena of anaphylactic nature developed in 10 per cent of the patients treated; there were no other complications. The initial dose was 0.2 cc.; it was increased by 0.1 cc. every week up to 0.5 cc. and then gradually decreased to 0.2 cc. The injections were given at intervals of a day alternately in the right and in the left arm. A series of from twenty to thirty injections was given twice a year for two or three years, even when recurrences were absent. Glässner has used the pepsin treatment in 321 patients with a duodenal ulcer, in

161 with a gastric ulcer, in 15 with a jejunal ulcer and in 3 with an esophageal ulcer. In case of hematemesis, the injection of pepsin was given three weeks after the hemorrhage had ceased. The treatment resulted in disappearance of free hydrochloric acid in 20 per cent; in 50 per cent the gastric acidity became normal; it remained unchanged in 18 per cent and increased in 12 per cent. The increase of acidity proved to coexist with an improvement of the subjective signs. The patients have gained from 1 to 25 Kg.; a gain of from 12 to 15 Kg. was frequent. The elimination of neutral red was retarded in 70 per cent of the cases; it was unchanged in cases refractory to the treatment. Occult blood disappeared from the stools. The number of eosinophils increased to 10 per cent; that of leukocytes, especially of lymphocytes, decreased. In all cases the healing was confirmed by roentgenography. The subjective signs usually have disappeared during the second week of the treatment. Besides the pepsin, a tablespoonful of olive oil was given before each meal and 0.5 Gm. of a bismuth preparation after each meal. The diet consisted of sweetened milk, honey, eggs, butter, soft cheese, mashed vegetables, ground white meat, fish, farinaceous food added with fat, bacon, compotes, alkali mineral water and toast or biscuits. Six or seven meals were given daily. Gastric or duodenal stenosis or perforating ulcer are contraindications for pepsin treatment; also cases of considerable hemorrhage in which an operation is urgent. The treatment is contraindicated when the presence of a malignant tumor is suspected. In over 60 per cent of the patients, healing persists for years; in 10 per cent, recurrences have occurred within half a year or a year after the treatment. About 50 per cent of the patients with a jejunal ulcer have improved; the subjective signs disappeared. The improvement was remarkable in the three patients with an ulcer of the esophagus. Ulcers of the tongue and ulcerations of the buccal mucosa yielded rapidly to the pepsin treatment alone; this was observed, among others, in a case of severe erythema multiforme with buccal ulcerations. The healing was prompt in cases of ulcer of the leg; the discharge ceased after a few injections. The treatment was favorable in cases of bed sore not connected with a spinal disease and in cases of diabetic and of arteriosclerotic ulcers. The results were good in two cases of pernicious anemia in which liver treatment was not tolerated. Under the influence of the treatment, cachectic patients with a carcinoma gained 2 or 3 Kg.; in two apparently inoperable cases, the effect of the pepsin was such that resection of the tumor could be performed afterward. The treatment brought about a transient improvement in two cases of lymphogranulomatosis.

Deutsche medizinische Wochenschrift, Berlin

57: 263-304 (Feb. 13) 1931. Partial Index

Problems of Inflammation. E. Starkenstein.—p. 263.
Results and Action Mechanism of Herrmannsdorfer's Salt-Free Diet in Tuberculosis of Skin. J. Dörffel.—p. 268.
Selection of Method of Anesthesia in Modern Surgery. H. Killian.—p. 271.
*Methods for Disinfection of Bacillus Carriers. F. von Gutfeld.—p. 274.
*Efficacy of Roentgen Irradiation in Disinfection of Diphtheria Bacillus Carriers. R. Wahl.—p. 276.

Methods for Disinfection of Bacillus Carriers.—Von Gutfeld emphasizes the frequency with which infections are disseminated by bacillus carriers (diphtheria, typhoid or paratyphoid bacilli). Attempts have been made to disinfect the bacillus carriers. However, after evaluating various methods the author comes to the conclusion that as yet there are no effective methods for the disinfection of the carriers and it is therefore necessary to employ all other measures for the protection of the public health. The author recommends that legal regulations in regard to bacillus carriers should be strictly adhered to, that the persons who are carriers are instructed as to the necessary precautions and that practitioners, public health officials and medical laboratories cooperate in making the bacillus carriers harmless.

Roentgen Irradiation of Diphtheria Bacillus Carriers.—Wahl reports that since 1929 he has used roentgen irradiation for disinfection of diphtheria carriers. The irradiations were made with the Holfelder instrument with the lead glass tube 3.5 cm. in diameter. When the patient was in the recumbent position the tube was adjusted in such a manner that the central ray entered at the submaxillary angle in the direction of the palatine tonsil. For the irradiation of the nose, the same tube was used. Irradiation through the open mouth was not considered, because the mouth cannot be kept open long enough to permit the tube to be adjusted to the tonsils. During the first irradiation, 30 per cent of a unit skin dose was applied. Infants, however, were given only half of this dose. Control tests of the nasal and pharyngeal smears were made from five to six days after the roentgen treatment. In 96 of 136 persons the smears were negative after the first irradiation. In persons in whom a second or third treatment became necessary, only 10 per cent of the unit skin dose was applied from two to three weeks after the preceding treatment. The author is entirely satisfied with the results of this method for disinfection of diphtheria carriers.

Folia Haematologica, Leipzig

43: 273-427 (Feb.) 1931

Case of Sarcomatoid Plasmocyte Lymphogranuloma. J. R. Carballo.—p. 273.
Statement on Blood Groups with Regard to Legal Medicine. V. Schilling.—p. 301.
Association of Acute Lymphogranulomatosis and Acute Aleukemic Lymphadenosis. W. Dubberstein.—p. 313.
Reticulocytes in Premature Infants and in the Still-Born: Test of Oxygen Tension Theory of Erythropoietic Control. J. Krafka, Jr.—p. 318.
"Nonleukemic" Myelosis with Osteosclerosis. A. Mavros.—p. 323.
Experimental Researches on Modification of Action of Substances Reducing Number of Leukocytes. G. Wallbach.—p. 340.
Classification of Anemias. M. J. Lifschitz.—p. 359.
*Case of Reticulo-Endotheliosis. A. Feller and E. Risak.—p. 377.
Macrocytic and Microcytic Erythropoiesis and Pathogenesis of Pernicious Anemia. R. Bucher.—p. 393.
Morphology and Function of Reticulo-Endothelium and Connective Tissue. H. Borchardt.—p. 410.

Case of "Reticulo-Endotheliosis."—The patient of Feller and Risak was a man, aged 71. At the age of 24 he had a persistent febrile disease in the course of which jaundice developed; the disease subsided under treatment with quinine. A year prior to admission to the hospital a painless enlargement of the cervical lymph nodes developed, first on the right side and a few days later on the left side. There was also swelling of the lymph nodes in the axilla and in both groins. A month later, swallowing of solid food became difficult. Further, both tonsils appeared enlarged; at the same time, red spots developed on the body. The lymphatic changes, as the considerable enlargement of the tonsils and of the lingual follicles, pointed to a disease of the lymphatic system; nevertheless the number of leukocytes was not increased. On the basis of the clinical signs, a subleukemic lymphadenosis was diagnosed. On necropsy and following microscopic examination, a notable proliferation of reticulo-endothelial cells was found in the lymph nodes, lymphatic pharyngeal area, spleen and bone marrow. Therefore the diagnosis of lymphogranuloma was excluded, because necrosis, formation of fibrillar intermediary substance, characteristic giant cells, epithelioid cells and eosinophil leukocytes were absent. On the other hand, proliferated reticulo-endothelial elements were found within blood vessels. The authors draw the conclusion that the case presented a granuloma-like hyperplasia of the reticulo-endothelial apparatus; namely a reticulo-endotheliosis of the hemoblastosis group.

Jahrbuch für Kinderheilkunde, Berlin

130: 253-376 (Feb.) 1931

*Fatal Vomiting Associated with Ketosis. S. Wolff.—p. 253.
Etiology of Encephalitis in Children. H. Knauer and P. A. Jaensch.—p. 265.
*Action of Carbohydrates on Intestine and Heart. W. Catel.—p. 305.
Severe Nervous Diseases Following Diphtheria. L. Kostyál.—p. 326.
Glycyltryptophan Test of Cerebrospinal Fluid in Tuberculous Meningitis. M. Kasahara and S. I. Takaishi.—p. 335.

Fatal Cases of Vomiting Associated with Ketosis.—Wolff describes two fatal cases of cyclic vomiting occurring in one girl, aged over 9 years, and in another, aged 6. In the first case the last recurrence was accompanied by fever. The vomit was expelled every three or five minutes; first it consisted of "coffee grounds," later it was mixed with bile; the patient's breath smelled of acetone. The throat, heart and lungs appeared normal and the abdomen was soft; neurologic examination did not reveal any pathologic signs. Acetone and albumin were found in the urine. Suddenly the fever rose to 39.2 C. (102.6 F.)

and collapse occurred; there were from 160 to 180 heart beats a minute. The amount of albumin and of acetone increased markedly in the urine and convulsions developed, ending in death. The second child with bronchiectasis was admitted to the hospital on account of vomiting persisting for three days. The attack was followed by a four weeks' interval; then vomiting recurred, this time accompanied by fever. Soon blood appeared in the vomit; the number of attacks of vomiting increased to thirty-three in a day. The heart beats ranged from 170 to 190 a minute; the child died. The author's theory is the following: Cyclic vomiting causes changes in the organism analogous to those in conditions of starvation and of water deficiency; in such a condition an intervening fever is able to induce circulatory shock. On account of the shock, resorption of food in the intestine is disturbed; disturbance of the intermediary carbohydrate metabolism is another consequence of the shock. In turn, these disturbances aggravate the hunger and thirst; fever enhances the effect of the shock and therefore the disturbances of intestinal resorption and of carbohydrate metabolism grow worse. The vicious circle brings about death.

Action of Carbohydrates on Intestinal Peristalsis and Ventricular Functioning.—Catel's tests in guinea-pigs were made with lactose, dextrose, levulose, brown sugar, saccharose and Soxhlet's nutrient sugar. The reaction of the intestine appeared to be identical with the various carbohydrates. In about thirty tests, a 1 to 6 per cent solution of carbohydrate proved to impair the intestinal peristalsis by from 10 to 88 per cent; the action was sometimes reversible when low concentrations were used. The action of the carbohydrates is a specific pharmacologic one. Evidently diarrhea appearing after oral administration of carbohydrates is not caused by the sugar but by volatile fatty acids developing on bacterial decomposition of the sugar. Further experiments aimed to ascertain the action of carbohydrates on the heart of frogs. For this purpose Ringer's solution to which was added from 0.2 to 6 per cent of carbohydrate was used. It appeared that in the summer months the solutions produced a positive inotropic action in twenty-eight out of thirty-six experiments; a ventricular arrest in systole was never observed. On the contrary, during the winter months the action of the carbohydrate solution was a negative chronotropic or a negative inotropic one, resulting in ventricular arrest in diastole. The seasonal differences are ascribed to changes in the metabolism, especially in the internal secretion occurring during hibernation. The positive inotropic action in the summer frogs (with a normal metabolism) does not depend on osmosis; again it is a specific pharmacologic one. Thence the conclusion is drawn that impairment of intestinal peristalsis occurs by the way of the sympathetic nervous system, and not from a direct action on the muscle. Researches are going on tending to ascertain whether the action of the carbohydrate is the result of irritation of the sympathetic or of inhibition of the vagus.

Medizinische Klinik, Berlin

27: 193-230 (Feb. 6) 1931. Partial Index

*Hypertension and Eye: Hypertension, Hypertonia and Their Organic Signs. J. Pal.—p. 193.
*Observations on Fundus Oculi in Hypertension and in Hypertonia. G. Guist.—p. 195.
*Experiences in One Hundred Cases of Acute Pancreatic Disturbances. E. Unger and H. Sostmann.—p. 198.
Genesis of Coxa Vara. H. Hilgenreiner.—p. 200. C'cn.
Sequestrating Pneumonia in Roentgenogram. E. Morvay.—p. 204.
Streptothrix Sepsis Treated and Cured by Intravenous Injection of Alcohol. A. Bötzel.—p. 207.
Frequent Occurrence of Abortive Forms of Progressive Muscular Dystrophy in Four Generations. G. Pamboukis.—p. 209.
Changes in Tubercle Bacilli During Passage Through Living Plants. O. Stickl.—p. 210.

Hypertension, Hypertonia and Their Organic Signs.—Pal differentiates between primary hypertonia and toxogenic hypertension. It has been found that not anatomic changes in the vascular system but rather functional disturbances of the arterial walls are the primary cause of hypertonia. It is of course possible that gradually there will develop anatomic changes. The form of hypertension that develops as the result of functional disorders is generally designated as essential hypertension; however, the author prefers the term "primary" hypertonia. Many patients with this form of hypertension are constantly flushed; their faces, especially, are always red. Venous congestion does not exist in these patients and the redness of the face is probably due to arterial stasis. Whereas in the primary form there exist mainly functional arterial disturbances, in toxogenic hypertension, which is generally observed in renal disturbances and in lead poisoning, the entire cardiovascular system is involved, heart, arteries, capillaries and veins. The toxogenic cases vary in many points, especially in the behavior of the veins, from the cases of primary hypertonia. It has been found that characteristic changes in the fundus oculi permit a differentiation of the two types. In primary hypertonia the fundus of both eyes shows corkscrew-like windings in the distal portions of the smallest veins. In toxogenic hypertension, however, this sign is not detectable.

Observations on Fundus Oculi in Hypertension and in Hypertonia.—Guist gives a more detailed description of the retinal vessels in patients with hypertension. He found that in primary hypertonia in which the walls of the veins are normal the fundus oculi reveals corkscrew-like windings in the distal portions of the small veins. The mechanism of this phenomenon is explained. In toxogenic hypertension in which the walls of both the arteries and the veins are thicker, the corkscrew-like windings are not to be found.

Acute Pancreatic Disturbances.—On the basis of observations on 100 patients with acute disturbances of the pancreas, Unger and Sostmann reach the following conclusions: 1. Acute pancreatitis and necrosis of the pancreas are much more frequent in women than in men. Of 100 patients, 20 were men and 80 were women. 2. Disorders of the biliary system are apparently the main cause of acute disturbances of the pancreas. 3. For the diagnosis the determination of the amount of diastase in the urine is of greatest significance. Increased diastase content in the urine indicates a disturbance of the pancreas. The negative reaction of the test, however, speaks nearly always against necrosis of the pancreas, except in those cases in which the pancreas has been entirely destroyed. 4. It is desirable to differentiate between acute pancreatitis and necrosis of the pancreas because acute pancreatitis can sometimes be counteracted by conservative measures, whereas progressive necrosis cannot be so treated but requires surgical intervention. Absence of severe toxic and peritoneal manifestations speak more for acute pancreatitis, whereas sudden onset, severe shock, early development of peritoneal symptoms and toxic symptoms speak for progressive necrosis. 5. In the after-treatment, disturbances in the sugar metabolism deserve especial consideration.

Monatsschrift f. Geburtshülfe u. Gynäkologie, Berlin

87: 269-346 (Feb.) 1931

Significance of Endothelium Symptom for Gynecology: Its Endocrine Causes. L. Bickel.—p. 269.
*Practical Value of Manoiloff's Pregnancy Reaction. K. Dierks.—p. 285.
Ovarian Pregnancy. A. Stux.—p. 293.
Method and Results of Direct Blood Transfusion in Obstetrics and in Gynecology. C. Clauberg and W. Pieper.—p. 298.
Hormonal Sterilization of Female Organism. L. Haberlandt.—p. 320.
Rare Form of Teratism. F. Kammerhuber.—p. 333.

Manoiloff's Pregnancy Reaction.—The simplicity of the technic of Manoiloff's seroreaction for pregnancy, as well as the contradictory statements made by different workers in regard to its practical value, induced Dierks to test the practicability of this color reaction. The directions which Manoiloff gave for the technic were carefully carried out. To 0.3 cc. of fresh, clear serum 1 cc. of a 2 per cent aqueous solution of theobromine sodiosalicylate is added and the mixture is shaken well. Then 1 drop of a 0.2 per cent alcoholic solution of nile blue is added and the mixture is again shaken well. The serum from gravidas decolorizes the mixture so that it appears yellowish or pinkish yellow. However, if the serum is from a nonpregnant woman, the nile blue becomes only slightly decolorized and remains bluish or pinkish blue. After employing the test on a large number of women, the author reaches the following conclusions: 1. Manoiloff's seroreaction belongs to the group of nonspecific pregnancy tests. 2. During the earliest period of pregnancy the reaction is not reliable and for the diagnosis of pregnancies after the fourth lunar month it is an adjuvant test but not always reliable. 3. The frequency of the decolorization of the alcoholic nile blue solution increases with the duration of the gravidity.

4. The serum of parturient women gives a positive reaction in 99.5 per cent of the cases. 5. During the puerperium the reaction remains positive to the ninth day. 6. In patients with neoplasms (carcinoma or myoma) it is positive in more than two thirds of the cases. 7. The serum of patients with gynecologic disorders always gives negative reactions except in those with neoplasm. 8. In the liquor amnii, Manoiloff's reaction is always negative.

Wiener klinische Wochenschrift, Vienna

44: 161-212 (Feb. 6) 1931

*Individualizing Radical Operation in Chronic Suppuration of Middle Ear. G. Alexander.—p. 161.
Permanently Cured Metastatic Ovarian Carcinoma. I. Amreich.—p. 165.
Spontaneous Atypical Rupture of Uterus. T. Antoine.—p. 168.
Primary Actinomycosis of Rectum. G. H. Bartsch.—p. 170.
Fissure Formation in Bony Structures of Internal Ear. H. Brunner. —p. 173.
Acute Yellow Atrophy of Liver Following Gonorrheal Epididymitis. R. Chwalla.—p. 176.
Etiology of Cancer of Lips. R. Friedrich.—p. 177.
Hypothesis of Origin of Entotic Sound Perception. S. Gatscher.—p. 179.
*Radium Therapy of Exophthalmic Goiter and of Other Forms of Hyperthyroidism. F. Högler.—p. 180.
Etiology of Aural Vertigo (Ménière's Disease). M. Krassnig.—p. 184.
Pathogenesis of Angina Pectoris. E. Lauda.—p. 185.
Is Scaphoid Scapula a Sign of Degeneration? F. Neureiter.—p. 187.
Pathogenesis, Prevention and Treatment of Communications Between Oral Cavity and Maxillary Sinus. L. Petrik.—p. 188.
Present Status of Knowledge of Natural Causes of Onset of Labor: Their Significance for Scientific and Practical Obstetrics. H. Rossenbeck.—p. 190.
Calculation of Color Index Value in Blood. F. Stengel.—p. 194.
*Thumb Contractures in Children. O. Stracker.—p. 197.
Classification, Manifestation and Treatment of Partial Retroflexio Uteri Gravidi sub Partu. A. Szenes.—p. 199.
Congenital Skin Defects. F. Weigl.—p. 202.
Sepsis with Agranulocytotic Blood Picture. J. Zikowsky.—p. 203.

Radical Operation in Chronic Suppuration of Middle Ear.—Alexander thinks that in cases of chronic purulent otitis media with acute exacerbations, and with cerebral involvement, the radical operation according to Küster and Bergmann is necessary. However, in cases without exacerbations and without intracranial involvement this operation is too extensive. If in chronic otitis media the pathologic changes in the bones are limited to the mastoid antrum and the upper portion of the tympanum, attico-antrotomy with preservation of the tympanic frame and with simple plastic surgery of the auditory canal is advisable. The intermediate forms of surgery, which stand between antrotomy and radical operation, are too typical and the author recommends instead individualizing of the radical operation. If the surgical treatment is strictly individualized, it is often impossible to decide before the operation how extentive the intervention will be. The individualized radical operation has the advantage that the wound cavity in the bone is not larger than is made necessary by the extension of the purulent otitis. Surgical intervention on the soft parts is limited to removal of large polypi. Scraping or denudation of the bone is not done. By thus preserving the soft parts in the middle ear one secures a more rapid and more favorable healing. However, the auditory tube should be subjected to curettage because the inflammatory processes within the tube do not heal spontaneously, and also because the curettage hastens the healing process in the middle ear and promotes the septum formation on the tympanic ostium. During the after-treatment, when the nose and pharynx are also given attention, the tube returns gradually to its physiologic action and secures normal air content for the cavities of the middle ear. The neomembrane closes the middle ear against the external auditory meatus and by this the middle ear is protected against external traumas. By preserving the contents of the middle ear, the formation of cicatricial indurations in the region of the fenestra is prevented and the hearing capacity is better. The author discusses the technic and significance of the after-treatment.

Radium Therapy of Hyperthyroidism.—Högler reports that, of 306 patients with exophthalmic goiter or with hyperthyroidism who in the course of twelve years received radium treatment, 217 showed marked improvement, which in many cases was almost equal to complete cure. In forty-six patients a slight improvement was noted. In forty-three cases there was no effect whatever, but an exacerbation as the result of radium irradiation was never observed. If these results are compared with those effected by surgical treatment or by roentgen irradiation, it becomes evident that radium therapy is as effective as those methods. Moreover, it should be taken into consideration that, if the radium treatment is given properly and with careful control of the basal metabolism, there is absence of serious complications, life-endangering hyperthyroid reactions or fatal outcome, whereas, in roentgen therapy and more often yet after operations, such complications have been observed. The author prefers radium treatment to roentgen therapy, particularly when it is desirable to avoid stronger reactions. He considers surgical treatment necessary in cases in which roentgen or radium therapy has failed, and also in patients in whom for social reasons generally prolonged irradiation is not practical. Operative treatment is always necessary in cases in which the goiter produces stenosis. However, even in these cases a preliminary radium treatment is frequently helpful. In regard to adhesions that develop following radium irradiation, in those cases in which later surgical treatment became necessary it was found that the adhesions, if present, were usually slight, and, in contradistinction to the vascular adhesions that develop spontaneously or after roentgen irradiation, they did not contain much blood and thus did not complicate the operation.

Thumb Contractures in Children.—According to Stracker, the thumb contracture in children develops as the result of an increase in the circumference of the flexor tendon. This increase in the circumference can be caused by various kinds of tissues: by vascular tumors, by cartilage deposits, or by thickening of the tendon without foreign tissue elements or by aggregation of elastic connective tissue. Although the thumb contracture originates in an embryonal anlage, the development takes place during the first year of life. Conservative therapy is generally without effect. Therefore the surgical division of the sheath of the tendon and excision of the nodule is recommended. The author asserts that this procedure rapidly leads to permanent cure.

44: 213-244 (Feb. 13) 1931

*Prophylaxis of Measles. W. Knoepfelmacher and J. Stross.—p. 213.
Prophylaxis of Measles and Investigations on Experimental Measles in Animals. H. Baar and H. Benedict.—p. 218.
Dosage of Acetarsone. M. Oppenheim.—p. 224.
Sepsis with Agranulocytic Blood Picture. J. Zikowsky.—p. 226. C'td.
Perforation of Gastric Ulcer During Absolute Fast. B. E. Pankratjew. —p. 230.

Prophylaxis of Measles.—Knoepfelmacher and Stross review the various methods that have been recommended for immunization against measles. In regard to active immunization, they state that it has not brought the desired results. They then discuss methods of passive immunization. Degkwitz's method, in which convalescent serum is used, has the disadvantage that it is difficult to secure the necessary quantities of convalescent serum. Other workers attempted to overcome this difficulty by using serum from adults who had had measles. In order to increase the antibody content of the blood of such adults, cultures of the virus of measles were injected into these adults previous to the withdrawal of the serum. Knoepfelmacher reasoned that the blood of patients with measles must contain the virus in large amounts and instead of injecting virus cultures he suggested the injection of blood from patients. The method that he recommends is as follows: On the day when the measles exanthem develops, 10 cc. of blood is withdrawn from the patient and injected into the adult who acts as serum donor. After from seven to fourteen days this person is again given an injection of fresh blood from a person with measles and after the same interval he is given a third injection. About seven days later reactivated serum is withdrawn from the donor, and after the sterility has been tested it is placed in ampules of 5 cc. each. Thus far the concentrated or reactivated serum has been obtained from sixteen donors. It is probable that the efficacy of the serum may perhaps be increased by mixing the serums. However, up to now this has not been done. Reactivated serum from adults was employed for the protection of several groups of exposed children, in all for 115. The children were given an injection of 5 or 10 cc. of the reactivated serum. In from 64 to 72 per cent of the children the prophylaxis was effective. Certain observations seemed to indicate that the reactivated serum protects only for a limited time.

Zentralblatt für Gynäkologie, Leipzig

55: 257-320 (Jan. 31) 1931

Theory of Pathogenesis of Cystic Mole. H. Hinselmann.—p. 261.
*Does Combat of Prenatal, Intranatal and Postnatal Mortality Require Medical or Social Reforms? S. Peller.—p. 268.
Treatment of Female Gonorrhea with Mixed Vaccines. V. Caesar.—p. 276.
Relative and Absolute Bactericidal Index. F. Daels.—p. 281.
Typhoid Infection of Ovarian Cyst. E. Bársony.—p. 287.
Folliculoma in Child Aged Five. P. Rummeld.—p. 292.
*Testing Intactness of Placenta. R. Luh.—p. 298.
Indications for and Technic of Salpingostomatomy. W. T. Matwejewa.—p. 302.

Infant Mortality and Medical or Social Reforms.—On the basis of statistics, Peller comes to the conclusion that the mortality rate of the new-born is not so much dependent on obstetric methods and on the competence or incompetence of obstetricians and midwives as on the living conditions of the mothers during pregnancy. Unfavorable living conditions of the mothers during the period of gestation cause (1) an increase in the number of premature births, (2) a retardation in the growth of the fetus, (3) smaller fetuses with a reduced expectation of life, and (4) death of the fetus before, during or after birth. These disadvantages can be counteracted if favorable living conditions are provided for pregnant women, especially during the later months of pregnancy.

Testing Intactness of Placenta.—Luh discusses three methods of testing the completeness of the placenta; namely, inspection, Franken's air test and Sachs's floating test. To compare the practical value of the three methods the author subjected a large number of placentas, from mature as well as from premature births, to all three tests. On the basis of his observations he reaches the following conclusions: 1. The most significant control test for the intactness of the placenta is and remains the inspection. 2. The air test according to Franken and Haba is, if negative, a proof of the intactness. The positive reaction is often a valuable control of the inspection; however, its hypersensitiveness is a disadvantage. 3. The floating test according to Sachs is unreliable.

55: 321-384 (Feb. 7) 1931

Operative Treatment of Exstrophy of Bladder: Fate of Patient in Whom Exstrophy of Bladder was Cured by Trendelenburg's Operation. F. Heinsius.—p. 322.
Makeshift Repair of Defect of Bladder and of Urethra Caused by Gangrene. H. Sellheim.—p. 332.
*Cure of Large Carcinomatous Tumor of Bladder by Means of Electrocoagulation. R. Goedecke.—p. 338.
*Physiologic Limits of Dilatation of Ureters During Pregnancy. H. Guthmann and K. Ehrhardt.—p. 341.
Changes in Ureters During Menstruation and During Gravidity, Also in Pyelitis and in Hyperemesis Gravidarum. O. Saitz.—p. 347.
Diagnosis of Ureterovaginal Fistula Combined with Vesicovaginal Fistula. O. Gragert.—p. 350.
Injury of Fetal Kidneys Caused by Corrosive Mercuric Chloride Poisoning of Mother. K. Rosenloecher.—p. 354.

Cure of Large Carcinomatous Tumor of Bladder by Means of Electrocoagulation.—Goedecke reports the clinical history of a woman, aged 48. For ten years she had had disturbances of the bladder and occasionally the urine had contained blood. When the vesical hemorrhages became more frequent and more profuse and also on account of severe pains during the discharge of urine, the woman came to the clinic. Attempts to stop the hemorrhage failed. Palpation revealed a large tumor in the bladder and cystoscopic examination disclosed that the capacity of the bladder was extraordinarily small and that the floor was completely covered with a tumor. Results of a biopsy indicated a papillary tumor with carcinomatous proliferation. A functional test of the kidneys revealed almost normal conditions, and visualization of the urinary passages by means of iopax showed likewise normal conditions. The author considers the latter diagnostic method especially valuable, because the treatment has to be different if the vesical tumor obstructs the ureters and causes disorders of the kidneys, pelvis and ureters than if only the bladder is involved. After the pathologico-anatomic conditions and the clinical aspects were completely understood, electrocoagulation of the tumor was begun. In thirteen treatments, which were given in the course of three and one-half months, the tumor was completely destroyed. The total number of minutes during which the electric current had been applied to the tumor was sixty-three and the strength of the current was 0.1 ampere. Six months has passed since the last treatment and repeated control examinations have proved that the tumor has entirely disappeared and only a fine scar remains. A cystitis no longer exists, and the urine is clear and free from pathologic elements. In the course of the treatment it had become clear that the growth was a pedicled adenomatous carcinoma. On account of its malignant character, high voltage roentgen irradiations were given in addition to the local electrocoagulation. After experiences in this case the author agrees with several other workers, who have had a wider experience with electrocoagulation of tumors of the bladder, that this method is to be preferred to all other therapeutic measures.

Physiologic Limits of Dilatation of Ureters During Pregnancy.—Because some investigators considered the dilatation of the ureters in pregnant women as a pathologic condition, Guthmann and Ehrhardt studied this phenomenon in thirty-five gravidas by means of pyelography following intravenous injection of iopax. In summing up their observations they state the following: 1. During the second half of pregnancy a dilatation of the ureters exists in nearly every woman. In more than half of the women examined the ureters were wider than a finger and in some instances they had the width of two thumbs. During the first half of gravidity the dilatation is rarer and not so pronounced, but in plurigravidas the dilatation is more frequent and also more marked. 2. The dilatation of the ureters may be considerable and yet there are no disturbances. If the urine is normal the ureteral dilatation may be considered as a physiologic condition of pregnancy. Therefore in evaluating roentgenograms of ureters of pregnant women the following should be kept in mind: In the majority of cases the dilatation of the ureters during pregnancy is a physiologic condition. Only if the examination of the kidneys reveals pathologic conditions or if the eventually existing pains disappear for a short time following pharmacologic or instrumental evacuation can dilatation of the ureters be considered a disease condition.

Kazanskiy Meditsinskiy Jurnal, Kazan

26: 1179-1252 (Dec.) 1930

Pathologico-Anatomic Lesions in Suprarenal Tuberculosis and Addison's Disease. M. Dal.—p. 1180.
*Alkali Reserve of Tuberculous Patients Treated with Koumiss. Tsvetkov and Inyushkin.—p. 1185.
*Results of Antivirus Used in Scarlet Fever. E. Ado-Agafonova.—p. 1194.
Clinical Features of Polyserositis. S. Flanchik and M. Lyakhovitskiy.—p. 1199.
Study of Para-Inguinal Hernia. P. Korzon.—p. 1215.
Mental Disturbances Accompanying Encephalitis. I. Galant.—p. 1234.

Alkali Reserve in Blood of Patients with Pulmonary Tuberculosis: Its Changes Under Influence of Koumiss.—Tsvetkov and Inyushkin point out that koumiss is an acid food because it contains a large amount of protein, fat and calcium, and a small amount of sodium and chlorine. Therefore the treatment with koumiss is compared with the Sauerbruch-Herrmannsdorfer-Gerson diet. Observations were conducted on eighty-five patients aged from 22 to 55. Koumiss was given for thirty-five days; a mixed regimen, amounting to 5,000 calories a day, consisted mostly of proteins. The alkali reserve of the blood was determined by van Slyke's method. No connection was found between the degree of gravity of the tuberculous process in the lungs and the acid-base balance of the blood. Among forty-four patients with a pyknic constitution, acidosis was present in thirty-three, acid-base equilibrium in ten and latent alkalosis in one. Of nineteen patients with an asthenic constitution, acid-base equilibrium was found in eleven, acidosis in seven and alkalosis in one. Among twenty-two patients with a mixed constitution, acidosis was observed in thirteen and acid-base equilibrium in nine. Of sixty-four patients with a compensated tuberculous process, improvement following koumiss treatment was associated with shifting of the alkali reserve to acidosis in 63 per cent and to alkalosis in 37 per cent. In eight of twenty-one patients with a noncompensated tuberculous process, the latter became aggravated or remained stationary in eight; there was shifting to alkalosis in seven. In thirteen cases the treatment brought about an improvement; in eleven of them there was shifting of the alkali reserve to acidosis. The induced acidosis may result in development of anabolic processes, as accumulation of fat and increase of defensive forces of the organism.

Streptococcic Antivirus in Treatment of Scarlet Fever.—The antivirus was used by Ado-Agafonova in 140 patients with scarlet fever, for prevention or for treatment of various complications. In cases of necrotic sore throat, the antivirus was instilled in the nose and sprayed over the throat, three times a day; the treatment proved to be without effect. Further, the antivirus was applied for treatment of scarlet fever adenitis with cold compresses changed twice a day. In some patients this was combined with spraying of the throat. In a control group of patients, adenitis was treated with cold sodium bicarbonate compresses. The antivirus was without influence on the duration of the adenitis, but the occurrence of suppuration appeared to be somewhat rarer. Spraying of the throat with antivirus was used prophylactically in eighty patients. The treatment started from the second to the sixth day of scarlet fever and was continued up to from the twenty-first to the twenty-fourth day. A remote development of adenitis was much rarer than when antiscarlet fever serum was used. Otitis occurred more frequently when antivirus and not serum was used; the spread of the infection in such cases appears to be analogous to that which has been observed on applying specific filtrates to a local inflammation in experimental animals. The percentage of a complicating nephritis appeared to be higher in patients treated with the antivirus than in the control group; the fact demonstrated the toxic property of the antivirus.

Klinicheskaya Meditsina, Moscow

8: 1129-1242 (Nov.) 1930

Study of Paroxysmal Tachycardia. S. Glezer.—p. 1151.
Intestinohepatic Syndromes. V. Smotrov, L. Shwarts, S. Sakharov and K. Ostapchenko.—p. 1157.
Pathogenesis of Gastric and Duodenal Ulcer. Ya. Bleykhman.—p. 1168.
Diagnostic Value of Secretion in Cases of Gastric Ulcer. L. Mailyan.—p. 1172.
*Dietetic Method of Treatment of Gastric Ulcer. B. Shklyar.—p. 1187.
*"Insulin-Like" Action of Bean Decoction. M. Lyass and V. Vovsi.—p. 1190.
Diagnosis of Endocarditis Lenta. B. Melkikh.—p. 1194.
Etiology and Pathogenesis of Benign Cholecystitis and Duodenitis. L. Ivanov.—p. 1221.

Dietetic Method of Treatment of Gastric Ulcer.—Shklyar's observations were made on twenty-three patients with ulcer of the stomach and in twelve with ulcer of the duodenum. The diet suggested is a variation of the Leube and Boas diet. The first day, a tablespoonful of milk is given every half hour; the second day, two tablespoonfuls of milk are given every half hour and so on, up to the fifth day, when five tablespoonfuls of milk are given every half an hour. Afterward the quantity of milk is not increased, and it is given with a farina gruel twice a day. The seventh day, a soft egg and 20 Gm. of butter are added; the eighth day, two eggs and 40 Gm. of butter and so on, up to the twelfth day when, besides milk and gruel, six eggs and 120 Gm. of butter are given. Then biscuits of white bread, starting with about 2 ounces a day, cream and mashed potatoes are added. From the fifteenth day on, the diet is unchanged; it presents then from 3,500 to 4,000 calories and consists of 14.7 per cent of proteins, 54.3 per cent of fats and 31 per cent of carbohydrates. During the first three weeks of the diet the patients rest in bed with a hot water bottle on the abdomen; then they are allowed to walk around and the diet is gradually changed to the basis of the ordinary regimen. The results of the diet were good in thirteen and satisfactory in four patients; there was failure in six instances. Weber's test for blood was positive in the patients' stools before, and became negative after, the treatment. The patients gained from 300 Gm. to 7 Kg. in weight in three weeks. Of three patients reexamined, one was feeling well up to two years; the condition of another was satisfactory up to one and one-half years; in the third, recurrences developed nine months after the dietetic treatment thus necessitating an operation. The gastric acidity has been examined after the treatment in six cases. A marked hypo-acidity was found in one, a slight hypo-acidity in one, a slightly increased hyperacidity in one, and in three the hyperacidity remained unchanged. The author points out that healing was obtained with the milk diet not only when gastric hypersecretion was unchanged but even when it became increased. Evidently not a decrease of gastric secretion ought to be the main purpose of diet in patients with a gastric ulcer.

"Insulin-Like" Action of Bean Preparation.—Lyass and Vovsi studied the action of a decoction of bean pods on the blood sugar of rabbits. Removed pods (by keeping beans in water) were moderately triturated and used for preparation of a decoction; the latter was passed through a gauze filter. Blood withdrawn from the auricular veins of the animals was examined half an hour, one hour and two, three and four hours after the decoction had been administered with a gastric catheter. A dose of 5 cc. of the decoction given daily, or a dose of 10 cc. given at intervals of a day, induced a decrease of the blood sugar, whereby the action was maximal between two and four hours afterward. A dose of 10 cc. given daily sometimes changed the hypoglycemia into hyperglycemia. Large doses of the bean decoction proved to be toxic; thus, 20 cc. of a 10 per cent decoction given by mouth, or 10 cc. given by the vein, caused death of the animal one or one and one-half hours later. On pathologico-anatomic examination the liver appeared to be completely deprived of glycogen; but no morphologic changes were found. The authors stress that obviously the action of the bean decoction differs from that of insulin because it does not replace the insular apparatus of the pancreas.

Nederlandsch Tijdschrift voor Geneeskunde, Haarlem

75: 697-848 (Feb. 14) 1931

Ocular and Labyrinthine Changes in Incipient Multiple Sclerosis. H. Weve.—p. 700.
Influence of Center of Gravity of Body on Toes and on Gait of Patients with Quadriceps Paralysis. H. Timmer.—p. 708.
Acute Anterior Poliomyelitis. J. Munk and H. A. Schaaf.—p. 715.
*Older and Newer Theories with Respect to Blood Coagulation and Hemostasis. E. Hekma.—p. 722.
Familial, Hereditary Type of Tuberous Sclerosis. J. Koenen.—p. 731.
Extension of Syphilis in Northern Part of the Netherlands, in Connection with Increase of Syphilis During Recent Years in Europe. K. Beintema.—p. 739.

Blood Coagulation and Hemostasis.—Hekma recalls that Hewson and Buchanan thought that the fibrin of the blood was present in the plasma in a preformed dissolved condition. According to Buchanan, the fibrin passes from the dissolved into the solid condition under the influence of a substance derived from the leukocytes, whereas Schimmelbusch was inclined to the view that it was more a question of a crystallization process, which conception was based on the discovery of crystal-like needles in the hanging blood drop. In opposition to these theories, the view of Schmidt and Hammarsten has been more commonly accepted, according to which fibrinogen occurs in the plasma in a dissolved condition, so that, on coagulation, fibrin develops from the fibrinogen, in some unknown manner, but under the influence of thrombin.

Hospitalstidende, Copenhagen

73: 1157-1168 (Dec. 4) 1930

*Fracture of Intercondyloid Eminence of Tibia: Relation to Other Lesions in Knee Joint. V. Aalkjær.—p. 1160.

Fracture of Intercondyloid Eminence of Tibia.—Aalkjær reports four cases of isolated fracture of the intercondyloid eminence of the tibia and discusses the origin, symptoms and treatment of this fracture and its close relation to the other lesions in the knee joint. Only twenty cases of isolated fracture of the eminence were found by him in the literature.

73: 1169-1192 (Dec. 11) 1930

*Blood Sugar Curve in Different Forms of Jaundice: In Obstructing Calculus in Common Bile Duct. E. Meulengracht.—p. 1177.
*Measurement of Temperature of Skin in Bed Patients, Especially in Phlebitis. J. Ipsen.—p. 1182.

Blood Sugar Curve in Different Forms of Jaundice: In Obstructing Calculus in Common Bile Duct.—Meulengracht states that in cases of obstructing calculus in the choledochus the blood sugar curve after the oral administration of dextrose is variable and can be used only with reservation in the differential diagnosis between hepatitis, cancer with stricture in the bile ducts, including cancer of the head of the pancreas, and obstructing calculus in the common bile duct.

Measurement of Temperature of Skin in Bed Patients.—Ipsen presents theoretical considerations regarding the action of the sympathetic nervous system. He emphasizes the possible practical value of measuring the temperature of the skin in differential diagnosis when phlebitis is suspected.